



Support to the implementation of the **ERDF INVESTMENT PRIORITY**

ENHANCING ACCESS TO, AND THE USE AND QUALITY OF ICT



Successful good
practice and
measures

July 2016

*Regional and
Urban Policy*

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of the **ERDF INVESTMENT PRIORITY**

ENHANCING ACCESS TO, AND THE USE AND QUALITY OF ICT

Successful good practice and measures

The guide is the result of a joint effort of:

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FOREWORD



The Europe 2020 Strategy recognised the potential of ICT and made the Digital Agenda for Europe one of its seven flagships. Its aim is to deliver smart, sustainable and inclusive economic growth by completing the digital single market and exploiting the innovation of fast and ultra-fast Internet connections along with interoperable services and applications.

Investments in ICT are growth enabler, creating jobs and reward investment in businesses. ICT research and innovation are therefore simultaneously the key to a more competitive and inclusive Europe.

The objective of the Guidance Notes is to collect successful good practice and measures that could help Managing authorities and Public administration in the design and effective implementation of ESIF ICT investments.

In order to make sure that ESIF investments achieve maximum impact, Member States and regions that wish to use funding for ICT-related projects have been required to put in place a strategic policy framework for digital growth and a next generation network plan.

A handwritten signature in black ink, appearing to read 'Walter Deffaa'.

Walter Deffaa
Director-General
for Regional and Urban Policy



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GUIDANCE NOTE
PRIORITY ICT MEASURES

Supporting the implementation of the ERDF investment priority "enhancing access to, and use and quality of ICT"

6 BEST PRACTICES

extending broadband deployment and the roll-out of high-speed networks and supporting the adoption of future and emerging technologies and networks for the digital economy

BROADBAND DEPLOYMENT

WIRELESS VERRUA

SUPERFAST CORNWALL

DIGITAL AGENDA TARGETS

THREE LAYER OPEN MODEL

WiFi BUSES

FBB

4 BEST PRACTICES

developing ICT products and services, e-commerce and enhancing demand for ICT

ICT PRODUCTS & SERVICES

ICT VOUCHERS

iMinds

E-COMMERCE PARK

LUISS ENLABS

4 BEST PRACTICES

strengthening ICT applications for e-government, e-learning, e-inclusion, e-culture and e-health

E-GOV & E-HEALTH

E-RESIDENCY

LIVING LAB

DIGIPOST

MYSPHERA LA FE

1. INTRODUCTION

1.1. HOW TO USE THIS DOCUMENT

Member States that are providing investments into ICT through ESIF funds are obliged to develop a specific Strategy Policy Framework for Digital Growth if the aim is to develop different ICT products and services; and to enhance the demand for ICT.

The lessons learnt from the previous ERDF programmes provide an evidence of the lack of capacity and know-how on behalf of the respective Managing authorities and Public administration, when the translation of the operational programmes priorities into implementation of the effective and timely measures is concerned. Fostering the development of the administrative capacities; and planning in the ICT domains, with an aim to achieving the target support of ESIF, has been underlined by the European Court of Auditors, which also highlighted the particular problem of durability and impact of ERDF investments; when ICT take up is concerned.

The objective of this document is to collect successful projects for Managing authorities and Public administration; in order to design and implement the measures within the strategic framework aiming at enhancing the access, use and quality of ICT by addressing the two ICT ex-ante conditionalities set for the Thematic Objective 2: Enhancing access to and the use and quality of information and communication technologies.

Next Generation Network (NGN) – Broadband Infrastructure

Thematic objectives	Investment priorities	Ex ante conditionality	Criteria for fulfilment
2. Enhancing access to and the use and quality of information and communication technologies (Broadband target)	ERDF: - Extending broadband deployment and the roll-out of high-speed networks and supporting the adoption of future and emerging technologies and networks for the digital economy.	2.2 Next Generation Network (NGN) Infrastructure: The existence of national or regional NGN Plans which take account of regional actions in order to reach the Union high-speed Internet access targets, focusing on areas where the market fails to provide an open infrastructure at an affordable cost and of a quality in line with the Union competition and State aid rules, and to provide accessible services to vulnerable groups.	A national or regional NGN Plan is in place that contains: - a plan of infrastructure investments based on an economic analysis taking into account existing private and public infrastructures and planned investments; - sustainable investment models that enhance competition and provide access to open, affordable, quality and future proof infrastructure and services; - measures to stimulate private investment.

Digital Growth

Thematic objectives	Investment priorities	Ex ante conditionality	Criteria for fulfilment
2. Enhancing access to and use and quality of information and communication technologies (Broadband target)	ERDF: <ul style="list-style-type: none"> - developing ICT products and services, e-commerce and enhancing demand for ICT - strengthening ICT applications for e-government, e-learning, e-inclusion, e-culture and e-health 	<p>2.1 Digital growth:</p> <p>A strategic policy framework for digital growth to stimulate affordable, good quality and interoperable ICT-enabled private and public services, and an increase in uptake by citizens, including vulnerable groups, businesses and public administrations, including cross border initiatives.</p>	<p>A strategic policy framework for digital growth, for instance, within the national or regional smart specialisation strategy is in place that contains:</p> <ul style="list-style-type: none"> - budgeting and prioritisation of actions through a SWOT or similar analysis consistent with the Scoreboard of the Digital Agenda for Europe; - an analysis of balancing support for demand and supply of ICT should have been conducted; - indicators to measure progress of interventions in areas such as digital literacy, e-inclusion, e-accessibility, and progress of e-health within the limits of Article 168 TFEU which are aligned, where appropriate, with existing relevant sectoral Union, national or regional strategies; - assessment of needs to reinforce ICT capacity-building.

1.2. RATIONALE FOR THE EX-ANTE CONDITIONALITY

Digital Growth

The European Commission has adopted the Digital Agenda for Europe as part of the overall Europe 2020 strategy for smart, sustainable and inclusive growth. The Digital Agenda proposes 101 specific policy actions across 7 domains: digital single market; interoperability and standards; trust and security; fast and ultra-fast internet access; research and innovation; digital literacy, skills and inclusion; and ICT-enabled benefits for EU society. This combined set of actions is designed to stimulate a virtuous circle of investment; in the usage of digital technologies. The Digital Agenda for Europe requires a sustained level of commitment at both EU and Member State levels; (also at regional level). The *ex-ante* conditionality aims are; therefore, to foster the development and implementation of national and regional digital growth measures; to assess their consistency with the Digital Agenda for Europe's goals and exploit national/regional assets in the spirit of smart specialization. Guidance on ways to address a smart specialization in ICT (as a sector but also in its cross-sector dimensions) are presented in the Digital Agenda Toolbox.

Next Generation Networks

Broadband connectivity is of strategic importance for European growth and innovation in all sectors of the economy and for social and territorial cohesion.

The Digital Agenda for Europe (DAE) sets the objective to bring basic broadband to all Europeans by 2013; and promote the deployment and take up of fast and very fast broadband by 2020; namely to ensure that:

- all Europeans have access to much higher internet speeds of above 30 Mbps;
- 50% or more of European households subscribe to internet connections above 100 Mbps.

The DAE foresees a number of measures to foster the deployment of the networks required to meet these two objectives; and to support the substantial investments required in the coming years. To achieve the objective of access to Internet speeds of above 30 Mbps; it is estimated that up to EUR 60 billion of investment would be necessary; and up to EUR 270 billion for at least 50 % of households to take up Internet connections above 100 Mbps. Such investments shall primarily come from commercial investors.

However, the deployment of broadband networks is generally more profitable where potential demand is higher and concentrated; i.e. in densely populated areas. Because of high fixed costs of investment, unit costs increase significantly as population densities drop. Therefore, when deployed on commercial terms, broadband networks tend to profitably cover only part of the population. In addition, even in more populated areas, economic reasons may result in insufficient coverage.

For these reasons, the Digital Agenda for Europe (DAE) objectives cannot be reached without the support of public funds. In doing so, it is essential that public funds are carefully used in this sector and that the Commission will ensure that public support is complementary and does not substitute investments of market players.

NGN plans are an *ex ante* conditionality, as they identify the areas where public intervention is required; because market actors have not rolled-out these infrastructures (and it is unlikely that they will do it in the near future), as well as the most efficient way of intervention.

2. MEASURES ADDRESSING BROADBAND DEPLOYMENT AND THE ROLL-OUT OF HIGH SPEED NETWORKS, SUPPORT OF THE ADOPTION OF EMERGING TECHNOLOGIES AND NETWORKS FOR THE DIGITAL ECONOMY

As the Internet becomes more important to the everyday lives of people around the world; commentators have tried to identify the best policies increasing the deployment and adoption of high-speed broadband technologies. Rural and disadvantaged areas across Europe have been in particular affected by poor ICT outreach and internet connection, which is presenting one of significant obstacles towards economic development; and in particular, new business opportunities and the creating of a “business friendly” environment (development of generations of rural web entrepreneurs). Private investments into the deployment of new broadband technologies and high speed networks, are pretty much non-existent in these areas; as the initial investment into the infrastructure is significant, while the leverage and return on the same, passes the usual “investment timeline threshold.”

The regional authorities often lack the proper setting to design and implement the set measures that would enable the digital



economy take up. One of the important effects of the deployment of broadband, can be increases in employment; even though the short term and long term effects may be different. The current building of digital infrastructure creates jobs directly, since workers will be hired to install broadband pipes. Furthermore, employment will also be created indirectly through the manufacturing of network equipment.

Moreover, the majority of economists state that broadband infrastructure contributes significantly to economic growth in different sectors of the economy. Broadband eases communication of information and ideas; facilitates the adoption of more efficient businesses processes and may boost international trade. The European Commission has stated that a 10% rise in broadband penetration increases GDP by 1%-1, 5%. A broadband deployment will also positively affect social inclusion; as broadband access in rural, remote or sparsely populated areas may encourage rural development, and allow the population to compete for jobs (particularly high-skilled, knowledge-based jobs) that otherwise might be restricted to populated areas. Improvements in communication, particularly for persons with reduced mobility or living in isolated conditions, can contribute to the quality of those citizen's lives too.

Nevertheless, good practices do exist; as a number of regions in Europe did recognize the need as well as potential in the ICT rural development.

In the following paragraph, six good practices have been identified and further elaborated 93 addressing the key factors of the measures that could serve as an example for the regional and national authorities across Europe to deploy.

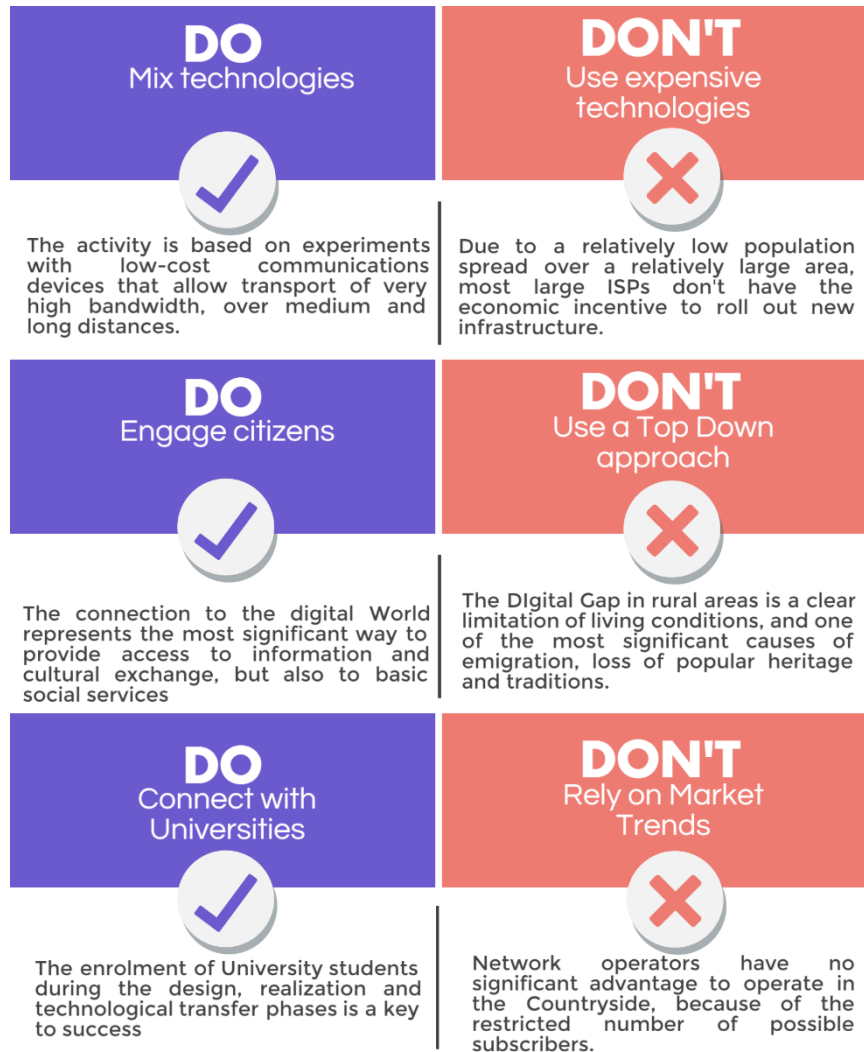
2.1. VERRUA SENZA FILI – WIRELESS VERRUA”, PIEDMONT, ITALY

<p>DESCRIPTION</p>	<p>A medium scale ‘Internet of Things and Internet of Services’ experiment, in a rural vil- lage in the Italian countryside; with an aging population and in an area digitally di- vided from the neighbouring cities (and consequently from the whole world). A Wide Band wireless network with full coverage was built to provide several remote services; Internet access, intelligent house (garden) control, remote assistance to people. ‘Inter- net of Things and Internet of Services’ activities are obtained by means of low cost open technology. A relevant application is represented by tele-assistance to elderly people living alone.</p> <p>The activity was based on experiments of low-cost communication devices that allow the transport of very high bandwidth (up to 70 Mb/s), over medium and long distanc- es (over 30 km). By using these devices, it was possible to build a wireless network; over an area of significant size (approx. 32 sq km), with mountainous terrain and therefore unfavourable for radio propagation. Despite this, the network was built with almost complete coverage (95% of the population; by 2015, it extended to 100%). Resi- dents were able to use the service from 1 October 2010; there are no time limits and connectivity is larger than the one offered in traditional rural ADSL, or the model al- ready provided in 2006.</p> <p>In 2004 iXem Labs of Politecnico di Torino developed an implementation scheme to facilitate the adoption of intelligent systems in rural areas. It is based on the creation of a very low cost broadband last-mile Intranet network; on the construction of extremely low cost sensors and controllers; on a strong participation of the residents; on the en- rollment of university students during the design and the production and technologi- cal transfer phases.</p> <p>‘Verrua senza Fili’ (Wireless Verrua), is managed by the iXem Labs, on behalf of the the (local county council) municipal administration and with the collaboration of the TOP-IX Consortium. TOP-IX (Torino Piedmont Internet Exchange) is a non-profit con- sortium that was set up in 2002 with the aim of creating and managing an Internet Ex- change (IX) for the exchange of Internet traffic in North West Italy. The first test was conducted by the Politecnico in the municipality, which had involved 65 end-users with excellent results.</p> <p>The service is completely free for all residents.</p>
<p>OBJECTIVES</p>	<p>The aim of the initiative is to provide a rural area with several remote services; Inter- net access, intelligent house (garden) control, remote assistance to people.</p> <p>The digital gap in rural (remote) regions is a strategic challenge for developing, but al- so developed countries; due to poor living conditions, one of the most significant causes of emigration, resulting in the loss of customs and traditions. Connection to the digital World represents the most significant way to provide access to information and cultural exchange, but also to basic social services like telemedicine and distance learn- ing. Additionally, in the last few years, a digital channel is requested more than ever to transport information related to ‘Things and Services’.</p> <p>In rural areas, the possibility to acquire, share and control information associated to home and/or environment may signify not only additional comforts; it can also save energy, reduce costs, guarantee a better life style, improved personal security and health assistance. Nonetheless, transforming a rural location into an ‘intelligent’ one does not make real sense, without a network. When a network is available, things and services may be inserted into a virtual social network, as is usually the case. The resi-</p>

	<p>dents may share, compare and optimize house management or it could be delegated to an external body. Security control could also be assigned to an external authority; energy consumption can be monitored by the local administration and health assistance can be supervised by a medical unit.</p> <p>Introducing an intelligent platform network to rural locations, is normally limited by bandwidth availability and end-users technological skill. Network operators have no significant advantage in operating in rural areas, because of the restricted number of possible subscribers. Furthermore, rural inhabitants are often unfamiliar with high technology and intelligent systems.</p>
<p>RELEVANCE FOR OTHER REGIONS</p>	<p>The initiative is an example on how, small rural communities can improve access to, the use and quality of ICT by supporting the deployment of high speed networks together with the adoption of emerging technologies and networks for the digital economy.</p> <p>Verrua Savoia, like many other parts of Italy, is what ISPs call a 'market failure' area. Due to a relatively low population spread over a relatively large area; most large ISPs don't have the economic incentive to roll out new infrastructure. Even smaller companies that specialize in wireless connectivity do not find it convenient to invest; as the population is reside in isolated communities whose mountainous topography thereby creating many difficulties.</p> <p>Italy lives with a wide digital and cultural divide that has left; not only large communities, but also most of Italy cut off from much of the rest of Europe and the United States. Italy has one of the lowest rates of ultra broadband connection per household in Europe which is half that of many contingente countries; e.g. Switzerland. Only 10 per cent of primary schools in Italy have a broadband connection.</p> <p>Finally, Italy consists about 50 percent mountainous surface area, where signal transmission is difficult and installation optic fiber cable is costly. According to the Italian government; introducing ultrafast broadband would "noticeably increase" the country's gross domestic product, and it could also slow or reverse the migration to cities that has depopulated villages like Verrua.</p>
<p>BENEFICIARIES</p>	<p>Citizens, businesses, ICT companies in Verrua Savoia.</p> <p>The experiment has been organised and developed along with local authorities of Verrua Savoia, in the Monferrato region, a vast, mountainous and chiefly agricultural area in North-West Italy, not far from the city of Turin. The village covers a territory of about 16 square kilometres, where about 1400 inhabitants live, with half of the population over the age of sixty-five.</p> <p>Very few factories and commercial activities are present; the economy is mainly agricultural, of which ninety percent is devoted to local domestic needs. Most of the people aged between 15 and 60 commute to surrounding towns and cities. Topographically, the township area consists of approx. thirty islets; some of them being connected exclusively through unsurfaced roads.</p> <p>As a business case, for ICT companies, the municipality is not profitable; for extended periods, broad band connectivity has not been provided to the inhabitants and to date, several villages are still without cabled ADSL connectivity. The relative distance from the city; the average age of the population; the significant presence of commuters and the lack of ICT facilities and ICT know-how, make the selected location a representative case of a general remote rural context.</p>
<p>MODE OF SUPPORT</p>	<p>Connecting to high speed Internet, free of charge, without limits of time and overcoming the difficulties related to the particular topography of the mountainous area,</p>

	where digital isolation, often creates difficulties and restricts the activities of inhabitants and businesses.
FUNDING MODEL	The project was financed as a research project the Politecnico University of Turin and through an investment of 15,000 Euros made by the municipality responsabile for infrastructure.
ELIGIBLE COSTS	5 PhD fellowships full time dedicated to the project
HOW TO IMPLEMENT SUCH A MEASURE AND PITFALLS TO AVOID	<p>Enabling legislation The measures were made possible due to current legislation; a ministerial decree for Wi-Fi issued by the Italian Ministry of Economic Development 14 October 2005, allowing small Internet providers, who do not have a concession to use radio frequencies, to adopt Wi-Fi Networks for deploying networks in rural areas not covered by broadband.</p> <p>Connecting users The first step is bandwidth availability and end-user connectability. In order to bridge this initial gap, a local wireless network has been set up, to interconnect all the surrounding villages. To lower the costs and avoid extra expenses, network design and the construction of hardware components have been developed by a first group of university students during their courses or internships. The inhabitants of Verrua participated in the setting up of the network by installing equipment independently thereby making it possible to connect to the network. Internet connectivity has been provided free of charge to all subscribers, transporting bandwidth from an internet exchange to the village by means of a high performance point-to-point radio-link.</p> <p>Smart devices When this first phase was completed, iXem Labs started developing home automation facilities for each subscriber. Citizens have been provided with one controller that can be connected to several sensors, a large number of personal Ethernet devices and actuators. The controller, the sensors and the actuators have been built by means of extremely-low-cost devices; developed especially for larger scale applications in rural environments. These open hardware solutions were designed and realized by a second group of University students. Among the several parameters that can be monitored are: temperature and humidity of the relevant rooms, unexpected gas/water leakages in the living environment, mechanical and vibrational state of buildings, ground humidity.</p> <p>Ad-hoc network A customized network environment, together with a dedicated web platform, was also developed, to favour a simple and integrated management of the sensing and controlling components. The collected information is transferred to a general monitoring console, situated in the local municipal building; giving a global overview of the situation of the entire village, and allows for an intermediate to upper level of protection and intervention. Its functionality can be undertaken by the owner or delegated to the local authorities in charge, depending on the presence/absence/capability of the house holder.</p>

Moreover, iXem Labs started developing a specific infrastructure to provide remote control devices which can monitor the living environment of elderly people, without affecting their privacy. The system is realized thanks to an extremely low cost wireless passive tracking platform, which collects information based on the activity inside the house.



ENGAGEMENT OF STAKEHOLDERS

In November 2014, the residents of Verrua announced the launching of the Associazione Senza fili, Senza Confini ("Association without wires, without borders"), a group charged with the task of bringing internet access to the 1,400 residents of the mountainous, 32-square-kilometer municipality. 'Senza fili, Senza Confini' is a not-for-profit citizens' ISP. Its founders claim it is the first of its kind in Italy, and a project that could pave the way for similar initiatives in other digital divide-affected zones across the country.

By paying a small fee, locals can sign up to become members of the Senza fili, Senza Confini Association and become part owners of their own network. Most importantly, they get a 20Mbps wireless connection, while neighbouring towns usually only have a 640Kbps wireless connection.

The fact that, Verrua Savoia's residents are directly involved in the connectivity of their township is an important ingredient for the success of the project. Everything is financed by the members of the 'Senza fili, Senza confini' Association; with relatively

	low membership fees compared to market standards: the first year's membership, including a fully configured receiver, costs €135; in subsequent years, the price drops to €80.
TIMELINE	<ul style="list-style-type: none"> • August 2010: deployment of the wireless transmitters <ul style="list-style-type: none"> ○ After 4 months, 120 houses connected ○ After 3 years, 75.000 GBs of data transferred ○ After 40 months, 240 houses connected • November 2014: birth of the non-profit association to manage the network • December 2014: end of the project <ul style="list-style-type: none"> ○ After 52 months of overall pilot project, 99.36% territory was covered and 99.33% inhabitants were connected to the wireless network ○ 8 wi-fi networks and hyper-lan deployed, with an average real bi-directional bandwidth of 1,2 Mb/s ○ 13 schools inter-connected with an super-fast intranet (10 Mb/s)
MONITORING OF RESULTS AND THE IMPACT	<p>Due to the large transport capacity, the City of Verrua Savoia will further develop local value-added services, previously unimaginable for a rural area; a Web-TV local weekly services for the elderly, almost entirely managed by the children of the local school.</p> <p>Thanks to TOP-IX, the Turin Piedmont Internet Exchange, the residents could enjoy free internet through <u>HiperLAN</u> receivers installed on their roofs and balconies for the duration of the project. In all, 260 people (40 percent of local households) took part in the experiment.</p> <p>The network was constructed between August and October 2010 and the number of subscribers has been increasing continuously, reaching approx. 200 in March 2012 (over a total of approx. 600 families). Surprisingly, not only were young people in the new technology, but the local authorities were forced to change the curriculum of the local Third Age university, incorporating an introduction to ICTs as one of the subjects along with cooking and gardening lectures. User appreciation about the network is very high, even if network management is carried out by university students and there is not an official "customer service". Residents participate actively in network control, usually being the first to report network problems and sometimes providing useful suggestions.</p> <p>The preliminary results measured in the house that has been automated from the period 2010-2011 are showing dramatic financial savings, primarily due to the remote control of sensory equipment. The results show a reduction of almost the 50% of energy consumption for central heating and about 25% of water used for garden irrigation. However, this early result cannot be considered as representative of the functionality of the whole system, but it represents an interesting starting point that generates important perspectives for the continuation and implementation of the project on a larger scale.</p>
AWARENESS RAISING AND COMMUNICATION	The project closely monitored by all Italian national newspapers and media. In December 2014 it was mentioned in the New York Times, as an international best practice. In 2015, the project was awarded the Smart Communities First Prize by SMAU, a leading international event in Italy in the field of innovative business.
LINKS	<ul style="list-style-type: none"> • http://www.senzafilisenzaconfini.org/ • http://www.ixem.org/research/vsf/vsf.php?language=en

"WIRELESS VERRUVA"

WHAT

A medium scale Internet of Things and Internet of Services experiment, in a rural village in the Italian Countryside, with a population relatively aged and in an area digitally divided from the neighboring cities.

WHO

Wireless Verrua is managed by the iXem Labs of Politecnico di Torino, on behalf of the Municipal Administration

2010

Project, financed by the University Politecnico of Turin



Connecting to high speed Internet, for free, without limits of time and overcoming the difficulties related to the particular topography of the mountainous area

2014

Citizens announced the birth of a not-for-profit citizens' ISP charged with the task of bringing internet access to the 1,400 residents of the hilly, 32-square-kilometer municipality.

KEY FACTS

1



240 houses connected

2



99% territory covered

3



52 months

4



8 Wi-Fi networks

5



13 schools inter-connected

2.2. SUPERFAST CORNWALL, UK

DESCRIPTION	The Next Generation Broadband Infrastructure project, known as Superfast Cornwall project delivers 'super-fast' fibre broadband (FTTC ,FTTP) aimed at the economic transformation and at leaving a long term legacy for Cornwall and the Isles of Scilly. Set up in 2011, it had an initial target to make fast, fibre based broadband available to at least 80% of homes and businesses in Cornwall. This was extended to 95% of premises by the end of March 2015.
OBJECTIVES	<p>The aim of the project is to reach from 80% to 90% of local businesses and homes across Cornwall and the Isles of Scilly (UK) with 'super-fast' fibre broadband (FTTC ,FTTP) and speeds of up to 100Mbps by 2014.</p> <p>The purpose is to benefit numerous local businesses, with estimates predicting the initial creation of 4,000 new jobs; while protecting 2,000 existing jobs.</p> <p>Furthermore, the Superfast Cornwall project has expanded its availability to a quarter of all premises (66,000 Cornish premises) in the region.</p> <p>Upload speeds have become increasingly significant in running a business; the way SME population use broadband connection has evolved. For the majority of SMEs, upload speed is now as important as download speed and this is not just confined to those business sectors that traditionally need ample bandwidth. Superfast broadband means that SMEs can easily accomplish tasks that were difficult or impossible before. The increased bandwidth capacity of SFBB means that a growing need to upload large documents, as well as download them, can be accommodated with ease.</p>
RELEVANCE FOR OTHER REGIONS	<p>Innovations in Cloud technology offer a fundamentally different way for SMEs to harness computational power, storage capacity and services but slow connectivity has been a major barrier to access. The increasing need for greater bandwidth both now, and in the future, is centred on the ability and growing requirement to take full advantage of Cloud services to operate more effectively.</p> <p>A further driver is how technological innovations are fueling the need for improved connectivity and changing expectations. SMEs have had to embrace an 'always on,' increasingly connected world and this has altered their own, their customers and clients expectations.</p>
BENEFICIARIES	<p>Around 50% of local businesses and homes in the area are expected to be connected by the end of the project using BT's fastest 'up to' 100Mbps Fibre-to-the-Premises (FTTP) technology, with the rest being covered by its slower 40Mbps FTTC (Fibre to the Cabinet) service and other solutions.</p> <p>Businesses and homes that exist outside of BT's fibre footprint will also receive faster speeds than today through a mix of alternative technologies, such as advanced copper (ADSL2+) upgrades, wireless (Wi-Fi) and Satellite broadband.</p>
MODE OF SUPPORT	<p>Superfast broadband delivers speeds of up to 330Mbps, compared with traditional, ADSL broadband, which in Cornwall averages at around 5-6 Mbps. Superfast broadband is 'superfast' thanks to fiber-optic cable which is used to deliver the service. The UK Government has recently defined superfast broadband as speeds > 24Mbps.</p> <p>With FTTP (Fiber to the Premises), the fiber-optic cable runs all the way into the premises, giving very fast speeds of up to 330Mbps.</p> <p>With FTTC (Fiber to the Cabinet), the fiber-optic cable runs as far as the green road-</p>

	<p>side cabinet, and your copper telephone line is then used to deliver the last leg of the service. Speeds of up to 80Mbps are possible with this service.</p> <p>With FTTC, the maximum speed will depend very much on the length of your copper telephone line from the cabinet. The vast majority of lines will support a maximum 'superfast' speed of > 24Mbps.</p>
FUNDING MODEL	<p>Public Private Partnership. A total of £53.5m of funding was provided by the European Regional Development Fund (ERDF) in the roll out of the project, making it the largest single Convergence investment, while an additional £78.5m was invested by British Telecom.</p>
ELIGIBLE COSTS	<p>Deployment of the new infrastructure. The Delivery Management Team project, led by Cornwall Development Company (CDC), was funded through the ERDF (£3.3m) and Cornwall Council (£1m).</p>
HOW TO IMPLEMENT SUCH A MEASURE AND PITFALLS TO AVOID	<p>Performance Against Targets</p> <p>The project has overachieved against its targets in terms of businesses connected, gross increases in jobs and Gross Value Added, and GVA safeguarded. This demonstrates that as well as exceeding its target for coverage, the project has also made a positive contribution to business growth and job creation. These impacts are especially noteworthy given that the roll-out of the project occurred in an economic context where survival, as opposed to growth, was still the primary focus for many businesses.</p> <p>Infrastructure Improvements</p> <p>Whilst much of the focus of future policy needs to be on capitalizing on the existing infrastructure, policy-makers also have to consider potential improvements, where needed, both to enhance the equitability of provision, and to ensure that the county continues to have cutting edge technology.</p> <p>Accomplishing Full Coverage</p> <p>It is recommended that continued efforts are made to ensure that residents, businesses and stakeholders are kept fully informed regarding the movement toward additional coverage and provided with realistic timescales.</p> <p>Improving Take-Up</p> <p>It is recommended that work, in collaboration with the internet service providers, continues to ensure that consumers and businesses are increasingly aware that they can connect to superfast or, if there are localized coverage issues, why they cannot. In addition it is recommended that business support organisations consider approaches to highlight the potential benefits that superfast can provide to businesses outside the digital sector.</p> <p>Business Support</p> <p>Whilst the findings present a promising picture of business use, future efforts to encourage businesses to capitalize on their superfast connections could be useful.</p> <p>Inward Investment</p> <p>Inward investment provides an important means of capitalizing on the superfast in-</p>

frastructure.

Digital Inclusion

In light of the value placed on it by stakeholders, and in the context of the increased digitisation of government services it will be important to continue the digital inclusion work undertaken through superfast.

<p>DO Empower local businesses</p> 	<p>DON'T Left behind rural areas</p> 
<p>Benefitting local businesses will help the initial creation of thousands of new jobs, while protecting also existing jobs.</p>	<p>In the context of the increased digitisation of government services it will be important to continue the digital inclusion work.</p>
<p>DO Embrace Cloud technology</p> 	<p>DON'T Rely only on private initiative</p> 
<p>Innovations in Cloud technology offer a fundamentally different way for SMEs to harness computational power, storage capacity and services</p>	<p>The project was born as a Public Private Partnership, where the ERDF joined British Telecom.</p>
<p>DO Perform against targets</p> 	<p>DON'T Work only on the existing infrastructure</p> 
<p>The target is not only the coverage, but the contribution to business growth and job creation</p>	<p>Policy-makers have to consider potential improvements, where needed, to ensure that the county continues to have cutting edge technology</p>

ENGAGEMENT OF STAKEHOLDERS

A new programme of investment was launched in June 2015 to build on the legacy of Superfast Cornwall. The new project sees the Council investing alongside the UK Government, through Broadband Delivery UK (BDUK), and BT to extend the fibre broadband network and provide increased access to superfast broadband speeds across Cornwall. Match funding is also being provided through the Regional Growth Fund and Growth Deal.

This new investment will build on the achievements of Superfast Cornwall and enable Cornwall to deliver fibre broadband into yet more rural areas and will be pushing to bring superfast broadband access to at least 8,600 more Cornish premises across the region by early 2018.

The project has been made possible through £2.96m of investment from the Government’s Superfast Extension Programme, while BT will invest £1.23 million.

The focus of the EU’s ‘Digital Agenda for Europe’ on developing a “single digital

	market” may enable Cornish businesses to further utilise the high-speed of their connections and develop new export opportunities. Similarly, the new focus on public sector innovation, eHealth and cloud computing may provide opportunities for further investment in Cornwall.
TIMELINE	<ul style="list-style-type: none"> • 2011: the first 50 customers were connected to the new superfast broadband ISP network in Cornwall UK, using Fibre-to-the-Cabinet (FTTC) technology to deliver speeds of up to 40Mbps. • 31st March 2011: thanks to the installation of 150 kilometres of new fibre optic cable, the service was made available to 1,000 homes and businesses in the ChivertonCross and Chacewater areas and in St.Agnes, St.Day, Portreath, Devoran, Leedstown, Stenalees and Par (another 14,000 customers). • 2014: end of roll-out.
MONITORING OF RESULTS AND THE IMPACT	<p>Superfast Cornwall has been the catalyst for large-scale economic growth in Cornwall, bringing £186.1 million of economic benefit, according to, independent research published by SERIO at Plymouth University and Buckman Associates.</p> <p>The research estimates that more than 12,000 Cornish companies are connected to the high-speed network, resulting in 2000 new jobs being created and a further 2500 safeguarded. The research involved more than 2000 separate survey responses and is thought to be the UK’s most advanced piece of research into the economic impact of fibre broadband.</p> <p>Findings from the business omnibus and counterfactual surveys suggest that connected businesses have exploited superfast to enhance their usage of the internet. Approximately four in every five connected businesses (79.1%) perceived superfast to be beneficial overall. In addition, 49% of businesses indicated that superfast had helped them to generate new sales or access new markets and, of these, nearly two thirds (62.3%) indicated that these markets were national or international. Several stakeholders were also able to point to cases where superfast had been used by Cornish businesses to access international markets.</p>
AWARENESS RAISING AND COMMUNICATION	<p>The project has been supported by a major marketing programme, skills programmes and support to ensure businesses make the most of the new technology. In collaboration with Plymouth University, Superfast Cornwall ran a series of focus groups to understand business attitudes and expectations regarding superfast broadband.</p> <p>Four new PhDs at Falmouth University have been part-funded by Superfast Cornwall, to continue the monitoring of issues like Supercrafted services, Sustainable digital neighbourhoods, Readiness for e-health, E-services.</p>
LINKS	<ul style="list-style-type: none"> • http://www.superfastcornwall.org/

SUPERFAST CORNWALL

WHAT

Initial target to make fast, fibre based broadband available to at least 80% of homes and businesses in Cornwall, then extended to 95% of premises.

WHO

The scheme was financed thanks to an investment made by British Telecom, with a co-financing made by the European Union.

2011

First 50 customers connected to the new superfast broadband ISP network (FTTC)



Superfast broadband, thanks to fibre-optic cable, delivers speeds of up to 330Mbps, compared with traditional, ADSL broadband, which in Cornwall averages at around 5-6 Mbps.

2015

Superfast broadband available to 241,00 out of the total 253,000 premises in Cornwall (more than 95% initially targeted)



KEY FACTS

1



£186.1 million of economic benefit

2



12,000 companies connectd

3



2,000 new jobs created

4



4 PhDs co-funded

5









99% of the population reached

2.3. DIGITAL AGENDA BROADBAND TARGETS FULFILMENTS IN SLOVENIA

<p>DESCRIPTION</p>	<p>A national initiative to deploy broadband to rural areas. Ensuring broadband access in rural areas through a combination of FTTH, FTTN, VDSL2 and Wi-Fi technologies. In order to decrease the initial investment cost for setting up the infrastructure, a mix of new and existing technologies was adopted.</p> <p>The rural area of Slovenia accounts for 81% of the territory, and 23% of all households are situated in this area. The suburban area accounts for 16% of the territory and 29% of households. In the rural and suburban area (97% of the territory) there is a total of 420,000 households which account for 52% of the 810,000 households in Slovenia. In these areas, the copper-based network of Telekom Slovenije remains predominant. Today the network provides Internet access at 30Mbit/s to 140,000 households. This means that, at present, 260,000 (62%) households in these areas cannot be provided with transmission rates envisaged in the Digital Agenda.</p>
<p>OBJECTIVES</p>	<p>The goal of the project is to achieve and even override the targets of the Digital Agenda in terms of connection speeds and proposed timing.</p> <p>It has been established that the most appropriate technology for broadband access is FTTH/point-to-point. The main problem of FTTH is the cost, due to high construction costs, which depends on the distance from the end-users location to the functional location (CO). In order to reduce the costs of the deployment of a particular broadband connection, the technical solution FTTN combined with VDSL2 technology can be applied. In this case the copper loop of the existing copper-based network will be shortened. The backhaul of the network will be upgraded by using fibre to move closer to the subscriber. Given the fact that the aims of the Digital Agenda have to be taken into consideration, and thus a transmission rate of at least 30 Mbit/s has to be ensured, it is necessary to emphasize that the application of this technical solution is limited, as the copper local loop must not exceed the distance of 1 km. In the case of commercial interests on the part of the operators or the end-users, this technical solution can be upgraded to the solution FTTH/point-to-point.</p> <p>Due to the fact that in areas where networks were built with public funds, Telekom Slovenije owns a copper-based network which could be reused, a feasibility study has been conducted.</p>
<p>RELEVANCE FOR OTHER REGIONS</p>	<p>Fiber projects can have a higher initial investment, but if total cost is considered, they might be already the most convenient.</p> <p>The initial investment can be considerably lowered (more than halved) if the reuse of existing infrastructure and the concurrent execution of works with SGEI is possible (EU regulation). As fiber results in significantly lower operational costs on long term basis e.g.20years, the projects are less responsive to the economic environment.</p> <p>In this framework of FTTH deployment, a private operator involved in the Slovenian market, Vahta doo, developed a tool to compare different tech scenarios over the same area. Currently it compares 4 technologies:</p> <ul style="list-style-type: none"> • Fixed wireless access with 4G network • FTTC+VDSL • FTTH Active Ethernet (P2P) • FTTH GPON (P2MP).

	The tool can be used to compare the efficiency between different projects / areas.
BENEFICIARIES	<p>Rural community.</p> <p>Due to poor return on investment (ROI) in low populated areas, ensuring high speed broadband access in rural, remote and therefore sparsely populated regions is a considerable problem for network operators.</p> <p>Digital Agenda for Europe 2020 has introduced challenging broadband targets for the near future, which are quite difficult to achieve in view of an ongoing recession, even with the proposed funding models.</p> <p>The two main aims of the Digital Agenda regarding the deployment of broadband networks by 2020 are:</p> <ul style="list-style-type: none"> • 50% of households with subscriptions to Internet connections above 100 Mbit/s • Internet access of at least 30 Mbit/s for all Europeans.
MODE OF SUPPORT	<p>In scarcely populated areas with a low density of end-users and their distance from functional locations are neither FTTN nor FTTH, technical solutions are feasible, i.e. economically justified. This means a wireless broadband network can be applied by deploying open base stations where a LTE network can be rolled out. LTE technology belongs to the group of technologies where bandwidth is distributed among end-users (who use the wireless broadband access simultaneously). However, given the fact that the technology would be used in scarcely populated areas as a fixed access, and it would be suitable for simultaneous installations of equipment by different operators, this would not pose any restrictions in regard to ensuring transmission rates of 30Mbit/s.</p> <p>On the basis of a detailed analysis of the existing Telekom Slovenije network and the layout of households in rural and suburban areas; it was established that the optimal technical solution would not only be the most affordable, it would also be a combination of FTTN, FTTH and LTE solutions.</p> <p>This technical solution would for the most part use the existing infrastructure of Telekom Slovenije; thereby reducing the investment costs substantially in comparison to a greenfield deployment of a broadband NGN.</p>
FUNDING MODEL	Public Private Partnership. The involved actors are from both public and private sectors (i.e. Telekom Slovenije and the ministries in charge) parallel to a set-up of steering bodies, public-private partnership, public consultation, etc.
ELIGIBLE COSTS	Total costs: 470 Mio EUR (including the human resources and administration costs, promotion/prospection, analysis, studies, evaluation, partnerships and networks)
HOW TO IMPLEMENT SUCH A MEASURE AND PITFALLS TO AVOID	<p>Technology</p> <p>Fibre-to-the-node (FTTN) combined with VDSL2 (Very High Speed Digital Subscriber Line) technology and wireless (in the case of commercial interests on the part of operators or end-users), this technical solution can be upgraded to the solution FTTH (Fibre-to-the-home) / point-to-point).</p> <p>Unique characteristics</p> <ul style="list-style-type: none"> • Technology mix to optimize the cost of the network • Funding models for high speed broadband networks • Public private partnerships for high speed networks • National operator's approach to digital divide bridging <p>Success factors</p>

	<ul style="list-style-type: none"> • Transparent picture of possible ways for overcoming the broadband gap issue on a national level • Focus on all acceptable broadband technologies for the rural and remote areas • Setting up a public private partnership The extended Optimal Model for a Digital Agenda network <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="width: 45%; border: 1px solid black; padding: 5px;"> <p style="text-align: center;">DO Know the market</p> <p style="text-align: center;"></p> <p>Projects usually involve knowledge of market activities (towards service providers and/or end users)</p> </div> <div style="width: 45%; border: 1px solid black; padding: 5px;"> <p style="text-align: center;">DON'T Rely only on private sector</p> <p style="text-align: center;"></p> <p>Projects deal with building and managing a specific infrastructure (telecommunications), which requires some specific knowledge also on the public partner side</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="width: 45%; border: 1px solid black; padding: 5px;"> <p style="text-align: center;">DO Know the EU Regulation</p> <p style="text-align: center;"></p> <p>EU members are subject to certain specific recommendations from the EU Commission regarding the funding of broadband projects from public sources.</p> </div> <div style="width: 45%; border: 1px solid black; padding: 5px;"> <p style="text-align: center;">DON'T Look only at national regulations</p> <p style="text-align: center;"></p> <p>The telecommunications market is regulated both by European and national rules</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="width: 45%; border: 1px solid black; padding: 5px;"> <p style="text-align: center;">DO Mix technologies and expertise</p> <p style="text-align: center;"></p> <p>Focus on all acceptable broadband technologies for the rural and remote areas</p> </div> <div style="width: 45%; border: 1px solid black; padding: 5px;"> <p style="text-align: center;">DON'T Follow only commercial trends</p> <p style="text-align: center;"></p> <p>Projects are sensitive to the issues of market distortion and public aid, as they usually border the areas where pure commercial telecommunications activities are conducted.</p> </div> </div>
ENGAGEMENT OF STAKEHOLDERS	Telekom Slovenije is the national operator of a public fixed network. Its primary network is based on copper technology. Over the last years it has rolled-out a branched FTTH fibre network in areas with higher population density, primarily in urban areas. It is also improving the range and quality of services with FTTN – by shortening the copper local loop in its copper-based network, the fibre part of the backhaul network is brought closer to the end user.
TIMELINE	<ul style="list-style-type: none"> • The project started on 01/01/2014, and will run until 31/12/2020 • The planning phase of the technical model has been implemented by 2014.
MONITORING OF RESULTS AND THE IMPACT	Quality infrastructure is the key element for regional development, in order to attract investors, entrepreneurs and also to improve the quality of life for residents. Broadband is such kind of infrastructure, however, we can still identify significant

	<p>gaps in the coverage, capacity and quality.</p> <p>Broadband should be provided by the private providers mainly. Rural areas, duly classified because of a low density of population, are not attractive for private providers (we call these areas 'market failure areas'). In these areas, the public partner role in the infrastructure development and deployment is necessary. The Public sector, especially in times of austerity measures, has not often had the capacity to solve the Broadband gap in rural areas alone, thus there is need for the cooperation between Private and Public actors.</p> <p>In the context of this PPP for the deployment of FTTH services, many spillovers came from external projects, such as PPP4Broadband a EU project. The aim was to improve the development of virtual accessibility in South-East European rural areas (using PPP model), in order to increase rural economic and social development.</p> <p>PPP4Broadband developed and promoted common PPP models and guidelines for the governance sector. The methodology helped to provide the public actors with advisory, guidance and expertise on the broadband internet development and consequently tackle the "digital divide", and also to improve the virtual accessibility of information, public services and territories. It also fostered the use of advanced ICT and reduced the need for inhabitants to travel and will replace physical mobility through virtual exchanges.</p>
AWARENESS RAISING AND COMMUNICATION	<p>The ultimate aim of this project is to assist and guide all stakeholders. However it is of utmost importance to aid the local authorities that want to participate in these kind of projects, by giving them a better understanding of deploying broadband infrastructures which means a better lifestyle for the inhabitants.</p>
LINKS	<ul style="list-style-type: none">• https://ec.europa.eu/digital-agenda/en/news/broadband-network-development-strategy-republic-slovenia• http://www.ppp4broadband.eu/

BROADBAND TARGETS

WHAT

National investment in Slovenia to deploy broadband to rural areas, ensuring access through a mix of FTTH, FTTN, V2SL2 and Wi-Fi technologies

WHO

Involved actors are from both public and private sectors (i.e. Telekom Slovenije and ministries in charge)

2014

Planning phase and implementation of the technical model

Given the existing network of Telekom Slovenije and the layout of households in rural areas, the optimal technical solution to deploy broadband, and the financially most affordable, is a combination of FTTN, FTTH and LTE solutions.



2020

Quality infrastructure is the key element for development of the regions in order to attract investors, entrepreneurs and also to improve the quality of life of citizens.



KEY FACTS

1



Mixing of 4 technologies

2



Rural area is 81% of territory

3



Only 48% of households in urban area

4



LTE suitable in scarcely populated areas

5









Raising awareness on PPP model

2.4. THREE LAYER OPEN MODEL, LOWER AUSTRIA

<p>DESCRIPTION</p>	<p>The model of Lower Austria is based on open infrastructure that provides consumers and businesses with an attractive connection to the global data world.</p> <p>In the rural regions of Lower Austria, the coverage with a sustainable and future-proof broadband infrastructure is still insufficient. Private providers invest primarily where it makes economic sense for them. Therefore, where private providers are not active, the regions will take over the establishment of sustainable broadband infrastructure under the aegis of IE Niederösterreichische fibre infrastructure GmbH (nÖGIG). This open infrastructure represents the so called “Three Layer Open Model”, which is the model recommended in the Guidelines of the European Commission for Broadband Investment. According to this model, the infrastructure is being built by the government and is leased to a neutral network operator. Therefore, this model therefore consists of three levels:</p> <ol style="list-style-type: none"> 1. Internet and communication services - The access to the Internet or the use of "Internet", TV and telephony is provided via existing as well as new service providers. This service includes direct contracts with consumers and businesses and also provides the settlement of use. 2. Cut operation of active network components - A neutral operator ensures the smooth operation of the required active components. This ensures operators based on the physical connection, the data connection of the individual buildings. 3. Passive infrastructure - The construction is carried out by a regional carrier and remains, like sewer and water pipes, in public ownership. Thus, the passive infrastructure ensures the physical connection of existing buildings through regional interconnections, called backbones.
<p>OBJECTIVES</p>	<p>The aim of the province of Lower Austria is to provide the full coverage of households, businesses and communities with open broadband. The support and implementation by the State of Lower Austria and the nÖGIG is based on the regional needs. The initiative provides the following for the benefits of residents and businesses:</p> <ul style="list-style-type: none"> • Free selection of a service provider - The services providers in Austria usually operate through their own networks and offer their services accordingly. Additional service providers or access to these private networks is usually more difficult and thus prevents competition and innovation. The construction of public physical infrastructure (fibre building connection) provides an open access to all service providers that are available to customers. The resulting competition benefits the customer. • Future security - Unlike traditional copper cables this type contains fiberglass with an enormous range and thereby allows significantly greater distances to the central network elements. Hence, physical limitations of speed belong to the past as symmetrical connection services from 100 Mbit / s and more is

	<p>guaranteed.</p> <ul style="list-style-type: none"> • Balanced speed - In current products via copper lines, the speed in the uplink would add up to the one tenth of the downlink speed. One reason for this is the high noise interference of copper cables. Glass fibre does not have this drawback, which results in the identical speeds in the uplink and downlink (= symmetrically). High uplink speeds provide numerous advantages, particularly in the communication (egg. video telephony), data transmission (egg. photo-upload) and in simultaneous use of multiple services.
<p>RELEVANCE FOR OTHER REGIONS</p>	<p>The providers in Austria usually operate their own network and offer their own specific services. The construction of public physical infrastructure (fibre-building connection) and open access for each service provider are available to customers through this fibre optic cable offered by a variety of vendors. The resulting competition is a benefit for the customer. According to this model, the infrastructure is being built by the government and leased to a neutral network operator.</p> <ul style="list-style-type: none"> • Attractiveness - The availability of ultra- fast internet connection is essential in assessing and choosing the location for many businesses. Moreover, many already established companies benefit enormously. A modern data infrastructure allows the use of services such as remote assistance, video conferencing, etc., it also facilitates the development of our own applications, thus creating new jobs in future-oriented sectors of the economy. • Use Of Synergies - The public sector maximizes synergies in the planned civil engineering works. Moreover, the municipality can determine the time and place in the process of building of their passive infrastructure. On the long term, low prices are guaranteed. • Faster Wireless - The above noted infrastructure enables mobile operators to offer broadband technologies such as HSDPA and LTE through the availability of fiberglass.
<p>BENEFICIARIES</p>	<p>Local community, tourists, municipality</p>
<p>MODE OF SUPPORT</p>	<p>Municipalities are the most familiar with the local conditions and know the needs of residents and businesses. This measure is therefore based on cooperation with local authorities. The support given by the nÖGIG takes place within the region, with the regional structures already established.</p> <p>The designated person appointed by the municipality becomes a mediator on behalf of the local authorities and the nÖGIG. The nÖGIG collects supporting information from the municipality of the particular region in question, which provides a benchmark with other regions. After this consultation on the region , nÖGIG provides submission of a report that contains information on passive infrastructure, the existing and planned national connections. This overview serves to plan forward in the target region. This plan is already in compliance with all civil engineering activities, any need for guaranteed and subsequent takeover aspects can</p>

	<p>be found in the manual of the country's northeast broadband. Furthermore, according to the plan, this particular region is included in the general plan for a nationwide expansion.</p>
FUNDING MODEL	<p>For the implementation of a proof-of-concept, a budget of EUR 5 million was provided by the province of Lower Austria.</p>
ELIGIBLE COSTS	<p>Costs of the feasibility study based on the future design of the measure would take into account factors note below. Other costs would relate to operational costs and field activity including the preparation and submission of the collected data in the form of an assessment report. Human resources, travel expenses, promotion and marketing of the activities and their final results will also be eligible.</p>
HOW TO IMPLEMENT SUCH A MEASURE AND PITFALLS TO AVOID	<p>The following factors will make the region eligible for implementation of such a measure:</p> <ul style="list-style-type: none"> • Undersupply of broadband; • Inventory of the existing infrastructure; • Synergies for cooperation at public level; • Established community cooperation within the region; • Available connection to a central Internet hub. <p>In the majority of EU Member States, cooperation at regional level is often inefficient and inadequately interlinked with the national authorities. This provides an obstacle towards the implementation of any activity, prolongs the timeline and often leads towards "lagging behind" factor. Hence, regional activities are of particular importance and have to be facilitated by the respective national authorities. This relates in particular, to broadband deployment in smaller regions and above all in rural areas that are noted to be the most disadvantaged areas in this regard.</p> <p>The national broadband strategies must include a regional perspective and a set of measures to apply for broadband uptake and deployment. As it has been clearly indicated in the description of the above noted measure, the level of information provided at local authority level is crucial in order to identify the current state of the art as well as the needs of the target region. Good coordination between the designated national authority and the local authority is a very important factor in the implementation of such measures. Moreover, the conducted data will determine the overall national strategy and its activity plan for the deployment of the broadband and the "Three Layer Open Model" respectively.</p> <p>The regional authorities will consider the efficient broadband infrastructure as a prerequisite for economic growth, innovation and territorial cohesion. It is the basis for a strengthening of the regional competitiveness and innovation, creation of new employment opportunities for young people, prevents relocation of the economy and facilitates foreign investment.</p>

	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p style="text-align: center;">DO Have an infrastructure goal</p> <p style="text-align: center;"></p> <p>Having an infrastructure goal (connecting buildings with fiber) and not a broadband goal (30, 50, 100 Mbps)</p> </div> <div style="width: 48%;"> <p style="text-align: center;">DON'T Implement at the local level</p> <p style="text-align: center;"></p> <p>Municipal level is too small, existing regional coalitions of municipalities much better</p> </div> </div> <hr/> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p style="text-align: center;">DO Collaborate with experts</p> <p style="text-align: center;"></p> <p>Linking a professional team of experts (financial, technical, regulatory, legal, tendering) with local authorities (construction, water, data) and municipalities</p> </div> <div style="width: 48%;"> <p style="text-align: center;">DON'T Deal with every issues</p> <p style="text-align: center;"></p> <p>Build public fiber access infrastructure in rural areas and then lease the infrastructure to a neutral active operator</p> </div> </div> <hr/> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p style="text-align: center;">DO Think Big</p> <p style="text-align: center;"></p> <p>Thinking and acting BIG (regional areas, >100M EUR)</p> </div> <div style="width: 48%;"> <p style="text-align: center;">DON'T Go in advance</p> <p style="text-align: center;"></p> <p>Separate the layers, focusing on infrastructure but don't start roll-out without pre-contract.</p> </div> </div>
<p>ENGAGEMENT OF STAKEHOLDERS</p>	<p>Currently, the testing of this model is taking place in five regions of the selected areas in Austria. The data collection of all three level models has been conducted through local projects. All relevant stakeholders particularly at the regional level are cooperating closely in order to ensure the proper evaluation and feedback.</p> <p>IE Niederösterreichische fibre infrastructure GmbH (nÖGIG) and the broadband coordination of Lower Austria work together with the goal of universal coverage with open broadband in Austria. Through targeted services, the different needs of residents, businesses and communities are supported.</p>
<p>TIMELINE</p>	<p>Phase 1: One year is the estimated period for the design of such a measure.</p> <p>Phase 2: Two years have been estimated as a period for the testing of the model in the target regions.</p> <p>Phase 3: Continuation of the implementation of activities based on the optimal testing model.</p> <p>However, it is important to highlight that there was no indication about the timeline regarding this specific measure.</p>
<p>MONITORING OF</p>	<p>Provide evaluation based on the monitoring outputs in periodic terms of 2 years</p>

RESULTS AND THE IMPACT	by taking into account the lessons learnt as well as the evolution of the policy context. Pursuant to the identified results as well as gaps, a further analysis will be made for future needs and trends.
AWARENESS RAISING AND COMMUNICATION	<p>An efficient web page as a tool for communication of the activities is an essential requirement, especially when measures are targeting the public participation at regional level. Web portal of IE Niederösterreichische fibre infrastructure GmbH (nöGIG) https://noegig.at/ provides sufficient information for consumers.</p> <p>In order to increase awareness of such a measure and its activities, with an aim to obtain a broader consumer outreach, it is suggested to conduct a campaign at national and regional level, including public consultations and workshops. The objectives and the activities of such a measure shall be clearly communicated to its target group primarily by the local authorities. Moreover, providing support materials such as brochures, leaflets and the like through services providers and implementing actors are needed in order to successfully target the consumers.</p>
LINKS	<ul style="list-style-type: none">• https://noegig.at/modell/

3 LAYER OPEN MODEL

WHAT

Open infrastructure in Lower Austria that provides consumers and businesses with an attractive connection to the global data world

WHO

wir verbinden niederösterreich



2015

Proof of concept
awarades in 5 regions

Strictly separating the role of physical
infrastructure provider, network
provider, and service provider



Building public fiber access infrastructure
in rural areas & leasing the infrastructure to
a neutral active operator

2016

3.000 FTTB/FTTH connections
(to get additional funding)



KEY FACTS

1

3

- Infrastructure
- Network
- Service

2



Overcoming
market failures

3



Pilot project

4



Broadband is
not the
problem

5









Infrastructure
is the problem

2.5. MOBILE WI-FI ROUTERS ON BUSES IN PORTO, PORTUGAL

<p>DESCRIPTION</p>	<p>Free internet access on buses circulating in the city of Porto. The project was launched in September 2014 as a 6 months experimental service connecting more than 400 buses, allowing passengers to access the free network "STCP Porto Digital".</p> <p>Almost all of the buses belonging to the public fleet of the SCTP have already been equipped with the new technology, which consists of a small innovative device and software which optimizes the flow of data from one node to the other and from there to internet infrastructure.</p> <p>Once the vehicles have the device box onboard, they form part of a mesh network - a network whose nodes all cooperate to distribute data between them. Mesh networks can expand wireless coverage by working as a wi-fi hotspot for passengers, and also gather huge amounts of data from the physical world and take it to the cloud using the vehicles as mobile sensors.</p>
<p>OBJECTIVES</p>	<ul style="list-style-type: none"> • To deploy a diffused ICT infrastructure in order to collect data and exchange information at urban level. - Buses become a kind of 'urban scanner' to be used for a variety of purposes: from spotting potholes in the streets to having vehicles communicate with garbage bins that in turn relay a message via the vehicles to the waste management company, which can optimize, in real time its garbage collection schedule/routes. Other applications are related to monitoring air quality, noise pollution levels, or CO2 emissions, thanks to the speed and pervasiveness of the mesh network. 'Internet of Things' is expected to open up more applications, as far as urban infrastructure is concerned. • Increase the attractiveness of public transportation for specific groups, such as young people and tourists, who are more likely to take public buses if they are connected while traveling. • Offload data traffic from 3G and 4G cell networks. - By using moving Wi-Fi hotspots, network providers can rely less on the cellular networks. The 600 buses of the "STCP Free Wi-Fi" initiative can reduce cellular network access by 50 percent in highly trafficked areas. • Make the city of Porto a 'living laboratory' for innovation.
<p>RELEVANCE FOR OTHER REGIONS</p>	<p>The project turned vehicles into Wi-Fi hotspots, offering full-stack solutions to:</p> <ul style="list-style-type: none"> • building city-scale vehicular networks that expand wireless coverage; • collecting terabytes of data in urban environments; • delivering robust wireless networks for ports and container terminals. <p>The STCP Free Wi-Fi is an example of how the cooperation among different stakeholders, from the public and private sector can contribute to the creation of data traffic and at the same time to the improvement of services offered to citizens. In Porto, free Wi-Fi has become a public utility, rather than a commercial commodity. STCP also installed a number of stationary Wi-Fi hotspots in the city to get on-to the Internet.</p> <p>An example of applications that could benefit from such solution is garbage collection. In Europe many sidewalk trashcans have sensors under their lids that are</p>

	<p>continually sending out information about the receptacle's volume. Mobile mesh network can monitor those sensors and, when a can is full, tell the connected garbage trucks that it's time for a pick-up. This is expected to reduce garbage trips by 30 percent</p> <p>In terms of cost and efficiency, the system has potential to spell dividends for municipalities that seek a low-cost option for citizen Wi-Fi. Recent studies indicates that every gigabyte sent through a cellular connection costs roughly 15-18 times more than through fixed Wi-Fi infrastructure.</p> <p>The technology used in Porto may represent an alternative for that areas highly dependent on mobile Internet access, yet unable to pay for cellular infrastructure.</p>
BENEFICIARIES	<p>Residents and tourists in the city of Porto.</p> <p>More than 70 percent of local smartphone owners in Porto are already using it. 60,000 people per month get online using its distributed network.</p>
MODE OF SUPPORT	<p>The technology provider sells the municipality Wi-Fi routers and a monthly subscription. Citizens get free Wi-Fi. In return, the municipality gets a host of data collected by the Wi-Fi routers from a network of sensors planted in its premisses.</p>
FUNDING MODEL	<p>The initiative builds on previous projects supported by FCT - Fundação para a Ciência e a Tecnologia, under the CMU - Carnegie Mellon University Portugal programme.</p> <p>The Future Cities initiative started in 2013 and will be concluded in 2015. With a total funding of 2.3 million Euros – 1.6 million from the European Commission (FP7-Capacities) and 700 thousand Euros from the QREN – Quadro de Referência Estratégica Nacional (National Strategic Reference Framework).</p> <p>The Wi-Fi service provided on the STCP buses is the continuation of a previous project led by INESC TEC, and developed in partnership with the STCP.</p>
ELIGIBLE COSTS	<p>Deployment of routers on vehicles.</p>
HOW TO IMPLEMENT SUCH A MEASURE AND PITFALLS TO AVOID	<p>Fiber backbone</p> <p>The key enabling factor for the success of the initiative was the city's fiber-optic backbone, needed to create Wi-Fi hotspots around the city, using hot spots, such as bus stops.</p> <p>Combination of existing technologies</p> <p>A combination of Wi-Fi and the IEEE 802.11p standard for wireless vehicle communication, and deployment in fleets (city's taxis and Metro de Porto's fleet), made the city wide mesh network possible and convenient.</p>

	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p style="text-align: center;">DO Combine different standards</p> <p style="text-align: center;"></p> <p>A combination of Wi-Fi and the IEEE 802.11p standard for wireless vehicle communication, and deployment in fleets, made the city wide mesh network possible and convenient.</p> </div> <div style="width: 48%;"> <p style="text-align: center;">DON'T Overcharge cellular connections</p> <p style="text-align: center;"></p> <p>Recent studies indicates that every gigabyte sent through a cellular connection costs roughly 15-18 times more than through fixed Wi-Fi infrastructure.</p> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 48%;"> <p style="text-align: center;">DO Use the existing infrastructure</p> <p style="text-align: center;"></p> <p>The city's fiber-optic backbone was needed to create Wi-Fi hotspots around the city</p> </div> <div style="width: 48%;"> <p style="text-align: center;">DON'T Think only to commercial exploitation</p> <p style="text-align: center;"></p> <p>In Porto, free Wi-Fi has become a public utility, rather than a commercial commodity, contributing to the creation of data traffic and to the improvement of services offered.</p> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 48%;"> <p style="text-align: center;">DO Show your results</p> <p style="text-align: center;"></p> <p>After the results achieved in the city of Porto, Veniam was able to announce a investment from private investors.</p> </div> <div style="width: 48%;"> <p style="text-align: center;">DON'T Focus only on local community</p> <p style="text-align: center;"></p> <p>Tourists are more likely to take public buses if they are connected while traveling.</p> </div> </div>
<p>ENGAGEMENT OF STAKEHOLDERS</p>	<p>The "STCP Free Wi-Fi" is the result of a partnership between institutions such as; STCP (Sociedade de Transportes Colectivos do Porto), Porto Digital, Veniam'Works, NOS, University of Porto, University of Aveiro and Instituto de Telecomunicações. The technology, developed by a spin-off company of the Universities of Porto and Aveiro, uses not only the cellular network but also the optical fibre network of Porto Digital, allowing the offload of large volumes data by the customers of STCP. Beyond Wi-Fi access, the vehicular network also gathers bus data that may be used for the optimization of energy consumption, mitigation of environmental impact, and management of road and public transport.</p>
<p>TIMELINE</p>	<ul style="list-style-type: none"> • September 2013: Start of the project • September 2014: Instalment of Wi-Fi routers on buses • September 2015: Collection of results and impact assessment
<p>MONITORING OF RESULTS AND THE IMPACT</p>	<p>Moving Wi-Fi network absorbs 50-80 percent of wireless Internet traffic that would have otherwise happened on cellular networks.</p> <p>Results achieved:</p> <ul style="list-style-type: none"> • City-scale vehicular mesh network launched in September 2014 • 600+ vehicles, incl. entire bus fleet, taxis and municipal service vehicles, connected with NetRider mesh networking devices

	<ul style="list-style-type: none"> • 150,000+ unique Wi-Fi users • 1.3M internet sessions • 2.3 TB of internet traffic per month • 260,000 hours of internet surfing • Average session duration of 16 minutes (close to average trip time) <p>After the results achieved in the city of Porto, Veniam (the technology provider, spin-off company of the Universities of Porto and Aveiro) was able to announce a \$4.9 million Series A round from private investors to fund its expansion in the U.S. The round was led by True Ventures in San Francisco and included money from New York City-based Union Square Ventures, Irvington, NY-based Cane Investments, and others private investors.</p>
<p>AWARENESS RAISING AND COMMUNICATION</p>	<p>In order to achieve a higher impact, a first key task of the project was to organise seven thematic workshops and conferences with the collaboration of Future Cities' EU partner institutions for dissemination of knowledge and to strengthen the research community and industry at a regional level.</p> <p>A second task was to ensure a strong presence at international events by means of staff participation, information booths and public demonstrations.</p> <p>A final task was to disseminate and create awareness both at the level of researchers and industry affiliates (through a newsletter), and to more broad audiences, via social media and the project's webpage.</p>
<p>LINKS</p>	<ul style="list-style-type: none"> • http://futurecities.up.pt/site/

Wi-Fi ON BUSES

WHAT

Mobile WiFi routers on Buses in Porto, turning vehicles into WiFi hotspots (expanding wireless coverage and collecting data)

WHO



Initiative developed under the Future Cities Project

2014

Instalment of routers on buses and launch of STCP Free WiFi



By using moving WiFi hotspots, network providers can rely less on the cellular networks. The "STCP Free WiFi" initiative can reduce cellular network access by 50 percent in trafficked areas.

2015

After the results achieved, the spin-off company of the University of Porto was able to get \$4.9 million funding from US private investors

KEY FACTS

1



600 vehicles connected

2



+150.000 unique wifi users

3



Average session 16 minutes

4



260.000 hours of web surfing

5



2.3 TB of internet traffic / m

2.6. FEDERAL BROADBAND BUREAU GERMANY







<p>DESCRIPTION</p>	<p>Since its establishment in 2010, the Federal Broadband Bureau is undertaking the role of the national competence centre for broadband.</p> <p>The tasks of the Federal Broadband Bureau (FBB) include the provision of knowledge about any relevant technology and guidelines about current issues; the organisations and improvement of direct communication between private enterprise, communal, federal state and national actors; the supervision and documentation of ongoing model projects and other best practices.</p> <p>FBB also supports potential beneficiaries in the process of obtaining funds from various sources and organises broadband events and workshops to further contact and cooperation of the many actors involved in the expansion of broadband networks in Germany.</p> <p>FBB maintains the connection between the broadband facilities in Germany and with the broadband competence centres of the federal states. It provides guidance on current matters, organises workshops, events for further developments as well as advice and information sharing (discussions on current issues concerning the deployment of broadband networks, the bilateral exchange of experiences and knowledge transfer, to present new opportunities for promoting broadband, the establishment and promotion of appropriate geographic information systems etc.).</p>
<p>OBJECTIVES</p>	<p>The strategic objective of the Federal Broadband Bureau is to support the broadband strategy of the Federal Government. In this context the operational objective is to combine organisational and technical solutions within the federal, state and regional framework and foster public-private partnerships. Moreover, the FBB contributes to creating of the new high-performance networks.</p> <p>The FBB has set an ambitious goal according to which by 2018, a high-speed connections of at least 50 megabits per second will be widely spread and accessible. The rural areas are in particular focus in this regard. This requires synergies to be considered and promoted in combination with commercial financing instruments.</p>
<p>RELEVANCE FOR OTHER REGIONS</p>	<p>The FBB is the contact authority for all municipalities, companies and residents interested in broadband development projects as well a centre of excellence, established by BMWI. The further development of broadband has been recognized as a strong driving force of the German economy that would lead to job openings thereby benefitting the region. The FBB plays a very important role and facilitates the process through the following actions:</p> <ul style="list-style-type: none"> • Build up of information, consultation offers and central provision of know-how; • Network of support, development and communication between all relevant stakeholders; • Establishment and maintenance of contact with the broadband competence

	<p>centres of the federal states;</p> <ul style="list-style-type: none"> • Implementation of the Digital Agenda 2014-2017; • Sharing of experiences or 'Best Practices'; • Support of local broadband development; • Increase of synergy effects.
BENEFICIARIES	Private homes, businesses, national and regional authorities, state agencies.
MODE OF SUPPORT	<p>FBB acts as a "one stop shop" by:</p> <ul style="list-style-type: none"> • Providing expertise on relevant technologies and guidance on related issues; • Offering guidance on funding; • Sharing of knowledge and experiences from existing pilot projects and other 'best practices'; • Organizing and conducting of dialogue sessions, broadband events and workshops; • Networking of all actors for possible direct, purposeful communication, etc.; • Mediating requests between the local administrations and relevant contact points in the country; such as competence centers and competent funding authorities. <p>FBB has launched a web based online platform to facilitate access to information, speed up procedures and provide support to its targets. The platform is divided into 1) a public area, where all announcements or results of approval procedures are published; 2) a restricted area, only for registered users, where project-related data (inputs) and analysis are maintained. The platform also hosts procurement processes with the aim to accelerate them. The procedure is simplified by the platform through the use of uniform procedures over the entire country. The platform also allows residents to report gaps in broadband coverage or any other malfunctions.</p>
FUNDING MODEL	State funding. All projects promoted under the framework of the FBB, fall under EU Guidelines on the application of state aid rules and are required to report their aid benefits to the Federal Broadband Bureau for monitoring purposes of the European Commission.
ELIGIBLE COSTS	Overall operating expenses of the bureau.
HOW TO IMPLEMENT SUCH A MEASURE AND PITFALLS TO AVOID	<p>The design of a similar measure will take into the consideration:</p> <ol style="list-style-type: none"> 1. National broadband targets and current broadband infrastructure; 2. Geographical and regional diversification; 3. Current and future E-services and E-government; 4. Services providers, support structures, entrepreneurs, end users;

- 5. Value proposition on benefits of broadband expansion and its outreach;
- 6. Procurement procedures and public consultation;
- 7. Commitment of relevant stakeholders.

The draft portfolio of services will then be streamlined through a series of consultations at regional and national level, with the participation of the infrastructure and services providers as well as end users.

The funding of such measure is a very important factor as the financial resources will ensure the sustainable, long-term operations. The funding will be based on the synergies of the national and ESIF funding. It is important to note that financial providers like banks as well as financial intermediaries will also be included in the project planning, along with the proper funding sources to the future beneficiaries in cooperation with the above mentioned.

DO Connect with external stakeholders 	DON'T Forget to spread the word 
The sharing of knowledge as well as lessons learnt with the counterparts in the countries that have already implementing such measures is a beneficial factor	Digital tools for communication of activities are required when measures are targeting the public participation.
DO Create a user centered approach 	DON'T Monitor only the implementation 
Consultations shall also include the participation of the infrastructure and services providers as well as end users.	Monitoring shall include both aspects, the design and implementation phase.
DO Go local 	DON'T Use different procedures 
Support potential beneficiaries at a local level in the process of obtaining development funds from various sources.	In order to accelerate procurement processes, it's necessary to use uniform procedures over the entire country.

ENGAGEMENT OF STAKEHOLDERS

In order to implement a successful measures, the cooperation of all relevant stakeholders is essential and cooperation with the government, industries and policy makers is necessary . For the successful uptake of such measure, creating a varied network of stakeholders (telecoms operators, manufacturers, investors, ISPs, mobile network operators, broadcasters, new media companies, content producers

	and rights holders, as well as central and local government, devolved administrations, Ofcom and others) is highly recommended.
TIMELINE	<ul style="list-style-type: none"> • 2010: Launched. The project planning was over a period of two years. • 2013: since then the jurisdiction of the telecommunications infrastructure is the responsibility of the Federal Ministry of Transport and digital infrastructure (BMVI).
MONITORING OF RESULTS AND THE IMPACT	<p>Monitoring will include both the design and implementation phase of the project. The supervisory body for the design phase will be formed by a body of experts, e.g those of government authorities including industrial experts and external expertise, will be in charge of the implementation. The monitoring of the project will be conducted in phases of consultations towards a finalization of the project .</p> <p>The supervisory body at the implementation phase will be a steering Committee or an advisory board made up of all relevant stakeholders in the area of broadband, notably, representatives of the government authorities dealing with transport and digital infrastructure, industry, service providers and external experts with an international experience in the field. In order to ensure transparency, acquisition of new knowledge, technology and trends, members of the supervisory body will change every 3 years. The outcomes of public consultations will be taken into account when monitoring is considered as it would provide an additional evaluation source of the support and services provided.</p>
AWARENESS RAISING AND COMMUNICATION	<p>The designed web page to communicate the activities is an essential requirement, especially when measures targeting the public participation and stakeholder commitment are conducted at the state level. The FBB portal http://www.breitbandbuero.de/ is well structured and is providing all relevant information about its activities to the beneficiaries.</p> <p>With view to replicating the project and to raise public awareness with the aim to get a broader consumer outreach, it is suggested to conduct a campaign at national and regional level, and followed by the ideation of such a project through the designated European Commission channels. The objectives and the activities of the project will be clearly outlined to its target groups. Moreover, providing support materials such as brochures, leaflets and other, through service providers and implementing actors are needed in order to successfully target the consumers.</p>
LINKS	<ul style="list-style-type: none"> • http://www.atenekom.eu/en/federal-broadband-bureau/

BROADBAND BUREAU

WHAT

Since its establishment, the Federal Broadband Bureau is undertaking the role of national competence centre for broadband in Germany.

WHO

The strategic objective of the Federal Broadband Bureau is to support the broadband strategy of the Federal Government.

2010

BBB was launched by the Federal Ministry of Economics and Technology (BMWi)



FBB has launched a web based online platform to facilitate access to information, speed up procedures and provide support to its targets.

2018

Germany's broadband strategy sets the goal of providing broadband access with at least 50 Mbps to all households

KEY FACTS

1



BBB act as one stop shop

2



Supports the strategy of the Federal Government

3



Support for funding

4



Organization of events and workshops

5



Providing expertise and best practices

3. MEASURES ADDRESSING DEVELOPMENT OF ICT PRODUCTS AND SERVICES, E-COMMERCE, AND ENHANCING THE DEMAND FOR ICT

The Internet has been cited as very powerful technological revolution that affects all aspects of business. Businesses accomplish their goals by moving beyond automating their existing processes and reaching a wider customer base, business partners and regulatory bodies such as governments by engaging most efficiently with them through the Internet and ICT technologies. In this regard, e-commerce has the potential to bring significant benefits to consumers. It can provide greater choice, promote competition among suppliers, and allow businesses to develop new relationships with their customers to the advantage of both. It has also has the potential to play a









large part in the development of the cross-border shopping dimension of the internal market. Moreover, the latest ICT technology is setting

up the path for mankind to think and work without limitations of physical borders. Open innovation shall further enable pick up of ICT. Isolated and geographically disadvantaged areas will be in particular leverage from the latest trends in that regard. However, despite to the obvious benefits of usage of the latest trend technologies and development of the services accordingly, they are not utilized by majority of the European Member States. While some of the countries are lagging behind, there are already countries who have recognized the potential in deployment of a number of ICT products and services and due to their successful implementation, these examples have been identified as good practices. The measures that lead the process from planning to implementation are used as a model to be considered for replication or at least inspiring motivation for countries and their implementing bodies when drafting the mandatory Strategic Policy Framework for Digital Growth is in question, which is one of the two ex-ante conditionalities.

3.1. CHEQUETIC - ICT VOUCHERS IN MURCIA, SPAIN

<p>DESCRIPTION</p>	<p>Innovation vouchers assisting micro-enterprises and SMEs in the region to use digital technologies, and to increase their competitiveness and enhance their chances of growing.</p> <p>The innovation voucher scheme, funded by the European Regional Development Fund, offers micro funds to SMEs (vouchers with a maximum value of €10,000, varying according to the SME needs). The vouchers could be exchanged for ICT services from private companies, universities, research centres and other accredited knowledge/service providers.</p> <p>The “ChequeTIC” is an initiative of Insituto de Fomento, in collaboration with the Dirección General de Patrimonio, Informática y Telecomunicaciones and the Dirección General de Presupuestos y Fondos Europeos of the Autonomous Community of the Region of Murcia with the following objectives:</p> <ul style="list-style-type: none"> • Increase the number of innovative companies in that region; • Facilitate SME access to ICT services provided by reputable suppliers; • Promote the acquisition of skills and the creation of links between SMEs and ICT service providers; • Financially support the procurement of such services; • Contribute to tissue growth regional providers of ICT services companies.
<p>OBJECTIVES</p>	<p>The ICT innovation vouchers' enables regional and national authorities to facilitate SMEs' access to digital know-how and technology by giving them the incentive to connect with ICT knowledge and service providers.</p> <p>The aim is to encourage the use of new ICT-based business models. Vouchers give the companies easy access to specialized services such as creating a business website and using it profitably, learning to use e-commerce tools to buy or sell, and adopting more sophisticated ICT tools for internal processes such as better resource planning, supply chain management, and customer relations management.</p>
<p>RELEVANCE FOR OTHER REGIONS</p>	<p>The European Commission announced a blueprint for the creation of ICT innovation vouchers to help micro-enterprises and small businesses in Europe's regions grow through the utilisation of digital technologies. The Organisation for Economic Cooperation and Development defines these vouchers as, ‘small lines of credit provided by governments to small and medium-sized enterprises (SMEs) to purchase services from public knowledge providers with a view to introducing innovations (new products, processes or services) in their business operations’.</p> <p>The regions can set up and fund an ICT Innovation vouchers scheme notably through the EU structural and investment funds (ESIF). The implementation of the scheme will be processed in a decentralised way by each region or country that will decide to use this instrument to trigger SMEs' digitization and contribute to their business development</p> <p>Innovation voucher schemes will be implemented by regional authorities who will</p>

	have the responsibility to adapt the scheme to local needs. Microenterprises and SMEs will apply for the vouchers with the regional implementing body.
BENEFICIARIES	Micro-enterprises and SMEs benefitting from a voucher could exchange it against ICT services, including services from private companies, universities, research centres and other accredited ICT knowledge and service providers.
MODE OF SUPPORT	The voucher provided the company with easy access to specialist services, such as creating a business website and using it profitably, learning to use e-commerce tools to buy or sell, or adopting more sophisticated ICT tools for internal processes, such as better resource planning, supply chain management, and customer relations management. The amount of the voucher was up to 7,500 Euro, corresponding to a 75% of a total eligible cost of 10,000 Euro.
FUNDING MODEL	Budget allocated: € 300 000 for the pilot project. The scheme was financed as pilot. De minimis rule may apply if adopted within a larger intervention scheme.
ELIGIBLE COSTS	<ul style="list-style-type: none"> • ICT-1: ICT applications and services for the internal management of the company (software for financial control, inventory, customers, processes, etc...) Type of services: <ul style="list-style-type: none"> • Customer relationship management; • Enterprise resource planning; • Business process management. • ICT-2: E-commerce (implementation of advanced ecommerce portals using social networks and tools to analyze the demand, applications for tablets and smart phones to leverage sales). Type of services: <ul style="list-style-type: none"> • Advanced e-commerce site (including social networks and analytic tools); • E-business Apps for tablets and smartphones (link to internal processes).
HOW TO IMPLEMENT SUCH A MEASURE AND PITFALLS TO AVOID	<p>Experience of the Implementation body: The Regional Development Agency of the Region of Murcia, Instituto de Fomento (INFO), had an extensive experience in the design, implementation and management of innovation vouchers.</p> <p>On-Line Application: Only on-line applications would be considered.</p> <p>Clear list of services: Applicants could select most appropriate services out of a portfolio of 28 services. Every service was described in detail.</p> <p>List of certified providers for each service: The Regional Development Agency made a personal certification (not to companies) to avoid juniors providing advanced innovation services. Each consultant was certified for each service. Each provider could be certified for more than one service.</p> <p>Voucher: The beneficiary (SME) signed the voucher and the provider of the services was in charge of cashing the grant from the RDA. The voucher was a grant endorsement and the text on it needed to be carefully designed.</p> <p>Process Management: the Instituto de Fomento, the RDA in charge of implementing the scheme, had a BPM application to manage all the important data and facts.</p>

	<p>Promotion/support: the RDA provided a group of 8 innovation managers to actively support the SMEs in identifying the most appropriate services.</p> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; width: 100%; justify-content: space-between;"> <div style="width: 45%; background-color: #4a4a9a; color: white; padding: 10px; text-align: center;"> <p>DO Leverage prior experience</p>  <p>The Regional Development Agency has extensive experience in the design, implementation and management of innovation vouchers</p> </div> <div style="width: 45%; background-color: #e64a4a; color: white; padding: 10px; text-align: center;"> <p>DON'T Go for a long process</p>  <p>Keeping it simple and short, helps to have a real impact on SMEs, addressing their needs.</p> </div> </div> <div style="display: flex; width: 100%; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%; background-color: #4a4a9a; color: white; padding: 10px; text-align: center;"> <p>DO Design a scalable process</p>  <p>Using a step by step approach.</p> </div> <div style="width: 45%; background-color: #e64a4a; color: white; padding: 10px; text-align: center;"> <p>DON'T Forget local needs</p>  <p>Regional authorities have the responsibility to adapt the scheme to local needs.</p> </div> </div> <div style="display: flex; width: 100%; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%; background-color: #4a4a9a; color: white; padding: 10px; text-align: center;"> <p>DO Be clear</p>  <p>Applicants could select most appropriate services out of a portfolio of defined and well explained services</p> </div> <div style="width: 45%; background-color: #e64a4a; color: white; padding: 10px; text-align: center;"> <p>DON'T Forget to validate SMEs interest</p>  <p>The amount of the voucher was up to the 75% of the total eligible cost.</p> </div> </div> </div>
<p>ENGAGEMENT OF STAKEHOLDERS</p>	<p>The Regional Development Agency of the Region of Murcia, Instituto de Fomento (INFO) acted as central point to coordinate with the regional managing authority and the Directorate-General for Telecommunications to deploy funds available to be invested in ICT and SME from the Operative Programme.</p>
<p>TIMELINE</p>	<ul style="list-style-type: none"> • October 2013: started the application process • January 2014: starting the support to SMEs • June/July 2014: start collecting first results and impact on SMEs supported • May 2015: launch of new round of ICT vouchers for 2015-2016
<p>MONITORING OF RESULTS AND THE IMPACT</p>	<p>From October to November 2013, 482 applications were received and 114 providers selected. As a result 44 vouchers were assigned (32 E-commerce, 12 internal management to 31 micro, 12 SMEs, 1 medium sized company) and 18 providers approved.</p> <p>There were 613 accreditations for 306 consultants from 129 different entities (companies, technology centers, clusters, etc.).</p>

	<p>The budget ran out in only two days, meaning that a large number of companies of Murcia were interested on the measure. For the next call, the budget should probably be larger.</p>
<p>AWARENESS RAISING AND COMMUNICATION</p>	<p>Promotion of the programme included organisations of training workshops providing a comprehensive support package to businesses. INFO continued helping regional SME to innovate their business through ICT, in close cooperation with the regional association of ICT companies (TIMUR) and the Directorate-General for Telecommunications.</p> <p>The Digital Single Market Strategy will provide businesses and entrepreneurs with new opportunities to scale up across Europe and grow global. As a driver for growth, digital should also be embraced by SMEs and micro-enterprises to enable them to innovate and remain competitive.</p> <p>ICT innovation vouchers are one of the tools that regions can implement to support micro-enterprises and SMEs to maximize the potential offered by the digital economy. ICT innovation vouchers are an effective incentive for SMEs and micro-enterprises to innovate by investing in digital technologies and online services.</p>
<p>LINKS</p>	<ul style="list-style-type: none"> • http://www.institutofomentomurcia.es/infodirecto/jsps/index.jsp

ICT VOUCHERS MURCIA

WHAT

Innovation vouchers assisting micro-enterprises and SMEs in the region of Murcia to use digital technologies, and to increase their competitiveness and enhance their chances of growing.

WHO

Initiative of Insituto de Fomento, in collaboration with the Autonomous Community of the Region of Múrcia

2013

Starting of the application process in October



The aim is to encourage the use of new ICT-based business models.

2014

Starting collecting results and impact on SMEs supported



KEY FACTS

1



44 vouchers assigned

2



18 providers approved

3



482 on-line applications

4



Services for e-Commerce

5





















Services for internal improvements

3.2. iMINDS FLANDERS, BRUSSELS, BELGIUM

<p>DESCRIPTION</p>	<p>The Flemish government created iMinds in 2004 to develop digital solutions through demand-driven research, and to foster commercial and societal uptake of new technologies, knowledge, products and services.</p> <p>iMinds was set up as a single point-of-contact organisation designed to link university research to the needs of business and to help build a positive venturing climate. iMinds translates research results in the digital domain into real-life products and services putting together scientists and their research partners. Today, iMinds is an 'integrator' for the digital research, leveraging strategic partnerships with all five universities in Flanders (Vrije Universiteit Brussel, Ghent University, Hasselt University, KU Leuven and University of Antwerp).</p> <p>iMinds' Demand Driven research is based on the "Flipped Knowledge Transfer Model", that reverses the researcher-driven flow of traditional academic research. With iMinds discovery is motivated directly by the business and technical innovation challenges brought forward by digital entrepreneurs. The Flipped model focuses on meeting the needs of start-up companies and is highly collaborative: researchers and entrepreneurs form a team, working together to define research questions, write research proposals and co-create knowledge. The Flipped model contributes also to provide answers to key challenges for start-ups, such as access to financing; iMinds helps to demonstrate the capacity to follow through on research requirements, and to access users and business partners.</p> <p>iMinds aims to broaden its catchment and internationalize its Flipped programme, opening it up to applicants outside of Flanders. Moreover, in 2015iMinds plans to trial a 'researcher in residence' programme.</p>
<p>OBJECTIVES</p>	<p>Injecting digital innovation in (new) companies" and translating the innovations into "digital" products and services that improve and enrich the lives of people, young and old.</p> <p>By connecting entrepreneurs to the needed research capacity and orienting the research process towards solving specific challenges, iMinds stands to:</p> <ul style="list-style-type: none"> • Boost the economic performance of start-up companies, • Forge new bonds between academia and industry, • Help governments achieve their objectives for commercialized innovation.
<p>RELEVANCE FOR OTHER REGIONS</p>	<p>iMinds shows how a government can promote new initiatives that create spill overs effects to a multitude of actors involved in the ICT/Digital industries and create multiplier effects on their funding base.</p> <p>iMinds contributed to the uptake of new digital services through the support provided to entrepreneurs, in particular with the incubation programme. The raising number of entrepreneurs entering the programme in the past years is transferring the region of Flanders into the digital research & entrepreneurship hub.</p> <p>iMinds extends an open invitation to all entrepreneurs and researchers to connect</p>

	<p>with its team and discuss opportunities to further test and deploy the Flipped Knowledge Transfer Model. The 'researcher in residence' programme and planned activities focused at internationalization shall result in participation of a broader scope of entrepreneurs from all over Europe, which may result in the creation of a European digital hub in Belgium.</p>
BENEFICIARIES	<p>Young entrepreneurs, researchers, industry and academia residing in Flanders. Nevertheless, the recent broader programme spectrum is also targeting the external beneficiaries, in particular young entrepreneurs from all over Belgium.</p>
MODE OF SUPPORT	<p>The iMinds provides a multi-stage support process, for its beneficiaries depending on the various phases at which companies can engage with iMinds:</p> <ul style="list-style-type: none"> • Ideation / Initial development process - gives entrepreneurs an opportunity to be engaged in the Opportunity Recognition Workshops and iBoot programme; • Incubation process - gives entrepreneurs an opportunity to be engaged into the iStart and Entrepreneur-in-residence programmes; • User & technical testing- gives entrepreneurs an opportunity to use the Technical Testing Center and Living Lab in order to conduct testing; • Internationalization & scaling - gives entrepreneurs an opportunity to internationalize and learn about funding through Go Global and Follow-up financing programme. <p>Support includes:</p> <ul style="list-style-type: none"> • The development of human capital through entrepreneurial education and experience for researchers, students and external; • Pre-seed funding, access to funding through network of partners, and other facilities (co-working and incubator space) to support start-ups; • Internalization support through connections with other Clusters of Innovation worldwide.
FUNDING MODEL	<p>The iMinds has been created as an independent, non-profit strategic research organisation by the regional government in Flanders.</p> <p>iMinds is, coordinated by relatively small central staff (40 people), responsible for strategy, incubation, and venturing activities and support. In total, iMinds has about 150 experts directly on its payroll and funds another 800 off the payroll of the various Universities in Flanders. On a yearly basis, about EUR 25 million of the overall budget is spent on multidisciplinary university research at all five Flemish Universities. iMinds researchers are located within their respective research groups at these universities and have double affiliations (iMinds and university). iMinds funds a certain amount of strategic research (ISBO) for each of its research department in the various universities. iMinds spends about EUR 5 million on technology transfer, incubation and other market-oriented activities.</p> <p>Moreover, iMinds invests small amounts (EUR 50.000 in average) in pre-seed funding to jumpstart the incubation process and entrepreneurship initiatives with quick market validation and feedback.</p>

	<p>For early stage investments, iMinds sources financing from a public seed capital fund (SOFI) that has been created by Flemish government for this purpose. In the 2nd stage, iMinds will typically invest amounts up to EUR 500.000 in order to make companies VC ready and to retain an equity stake.</p> <p>Through its early investment iMinds plays an important role in addressing the structural lack of seed capital (the equity gap) in the ICT sector and works with the governmental fund that invests in its start-ups.</p> <p>State aid could be provided under de minimis regulation or Article + 22 Aid for start-ups (Regulation 651/2014)</p>
<p>ELIGIBLE COSTS</p>	<p>Personnel costs and other operating expenses</p>
<p>HOW TO IMPLEMENT SUCH A MEASURE AND PITFALLS TO AVOID</p>	<p>Focus A critical factor that contributes to the success of iMinds is the focus on the specific target sector (in this case ICT), integrating all relevant actors around one central organisation.</p> <p>Technology integration Similarly, the integration with the strong technology base present within the universities is highly important. Increasingly, e.g., through the iStart incubation programmes and the technology scouting activities in the acceleration programmes, start-ups and SME's start connecting to, and make good use of this technology base.</p> <p>Open Innovation An additional strength of the way iMinds tackles the challenge is in the transparent nature of both its research and entrepreneurship programme. Most research organisations tend to keep their entrepreneurship and technology transfer programmes reserved for their researchers. iMinds with the support of Flemish government, has opened these programmes to the benefit of the ICT community.</p> <p>Global Network Finally, linking the innovation clusters around iMinds in Flanders to other world-wide, clearly fosters the entrepreneurial spirit and helps new start-ups and SME's act globally from onset. For Flanders to become a globally relevant cluster of innovation is to attract enough funding to keep the ecosystem in Flanders vibrant. iMinds is actively working with partners to solve this problem by creating a more active ICT Business Angel Community and by establishing contacts with internal funds that are looking to source the deals.</p>

	<table border="0"> <tr> <td data-bbox="523 280 954 622"> <p>DO Focus on a specific sector</p>  <p>iMinds is focused on the ICT sector, integrating all relevant actors around one central organisation.</p> </td> <td data-bbox="960 280 1391 622"> <p>DON'T Go alone</p>  <p>iMinds is an 'integrator' for the digital research, leveraging strategic partnerships with all five universities in Flanders</p> </td> </tr> <tr> <td data-bbox="523 631 954 974"> <p>DO Open Innovation</p>  <p>The entrepreneurship and technology transfer programmes are open for the entire ICT community</p> </td> <td data-bbox="960 631 1391 974"> <p>DON'T Produce only research results</p>  <p>iMinds translates research results in the digital domain into real-life products and services putting together scientists and their research partners.</p> </td> </tr> <tr> <td data-bbox="523 983 954 1326"> <p>DO Engage the Global Community</p>  <p>For Flanders to become a globally relevant cluster of innovation is to attract enough funding to keep the ecosystem vibrant</p> </td> <td data-bbox="960 983 1391 1326"> <p>DON'T Use traditional approaches</p>  <p>Discovery is motivated directly by the business and technical innovation challenges brought forward by digital entrepreneurs</p> </td> </tr> </table>	<p>DO Focus on a specific sector</p>  <p>iMinds is focused on the ICT sector, integrating all relevant actors around one central organisation.</p>	<p>DON'T Go alone</p>  <p>iMinds is an 'integrator' for the digital research, leveraging strategic partnerships with all five universities in Flanders</p>	<p>DO Open Innovation</p>  <p>The entrepreneurship and technology transfer programmes are open for the entire ICT community</p>	<p>DON'T Produce only research results</p>  <p>iMinds translates research results in the digital domain into real-life products and services putting together scientists and their research partners.</p>	<p>DO Engage the Global Community</p>  <p>For Flanders to become a globally relevant cluster of innovation is to attract enough funding to keep the ecosystem vibrant</p>	<p>DON'T Use traditional approaches</p>  <p>Discovery is motivated directly by the business and technical innovation challenges brought forward by digital entrepreneurs</p>
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<p>ENGAGEMENT OF STAKEHOLDERS</p>	<p>iMinds comprises of more than 850 top-notch researchers in 5 research departments.</p> <p>Each of the research departments has a special focus and clusters the expertise of its research groups across 5 Flemish universities. iMinds researchers represent 55 nationalities and include 52 university professors. iMinds cooperate with more than 80 start-up projects.</p> <p>The governance structure of iMinds includes representatives from both, public and private sectors. These Board members represent iMinds main stakeholders: government, universities, large companies in the ICT landscape, financiers and to a lesser extent, entrepreneurs.</p> <p>It is recommended to follow the same/similar structure if replication of such a model/measure would apply.</p>						
<p>TIMELINE</p>	<ul style="list-style-type: none"> • 2004: Established • 2008: iMinds' iVenture fund was created to address the structural lack of seed capital in the ICT sector • 2010 on: all the iMinds research groups are clustered in research departments according to their competencies, independent of the university they are affili- 						

	<p>ated with.</p> <ul style="list-style-type: none"> • 2012: Launch of a new strategy over a 4 year period to become an international frontrunner.
MONITORING OF RESULTS AND THE IMPACT	<p>Ever since iMinds was established in 2004, they have already completed more than 550 local and European research projects, in collaboration with the industry. More than 1,250 research partners (commercial companies, organisations and governments) have been involved in the projects since the start. Moreover, since its inception, iMinds has supported more than 80 start-up projects through its iStart incubation programme. In 2011, the programme was opened up to external entrepreneurs; currently, more than half of the iStart incubation projects come from outside iMinds or academia.</p> <p>In terms of this measure being replicated, the evaluation based on the monitoring outputs shall be structured within the periodic terms of 3 years by taking into account lessons learnt as well as the evolution in terms of the building up of the activities along the process. Pursuant to the identified results as well as gaps, further analysis will be built up by taking into account future needs and trends.</p>
AWARENESS RAISING AND COMMUNICATION	<p>The promotional activities have been conducted through the iMinds media tool, organisation of the regular brokerage events, annual event, conferences (local and international). Moreover, activities and all relevant information of the iMinds have been timely and regularly posted on the designed web portal https://www.iminds.be/en, while all the subscribed users can receive up to date information via iMinds newsletter.</p> <p>iMinds is also active in using social networks as communication channels for the broader outreach. The research organisations involved as well as all partners of the iMinds have been active in raising awareness as well as promotion of their activities.</p> <p>In order to increase awareness of such a measure and its activities, with an aim to get a broader outreach, it is suggested to conduct a campaign at the regional, national and EU level. Moreover, providing of support materials such as brochures, leaflets and other through service providers and implementing actors are need in order to successfully target the end users.</p> <p>As Flanders' digital innovation center, iMinds is truly making a name for itself internationally. In UBI Global's 2014 European ranking, the incubator claimed 7th place. In 2015, iMinds was voted 2nd European best in the 'Top University Business Accelerators' category.</p>
LINKS	<ul style="list-style-type: none"> • https://www.iminds.be/en

iMinds FLANDERS

WHAT

The Flemish government created iMinds to develop digital solutions through demand-driven research, and to foster commercial and societal uptake of new technologies

WHO

iMinds shows how a government can promote new initiatives that create spill overs effects

2004

Setting up of iMinds



Providing a multi-stage support process, depending to the various phases at which companies can engage with iMinds

2011

The program was opened up to external entrepreneurs; currently, more than half of the iStart incubation projects come from outside iMinds or academia.

KEY FACTS

1



+550 research projects

2



+1,250 research partners

3



+80 start-up projects

4



+55 nationalities involved







5



50.000 € average pre-seed funding

3.3. E-COMMERCE PARK, HELSINGBORG, SWEDEN

<p>DESCRIPTION</p>	<p>E-commerce Park of Sweden is an example of how to support the development of ICT products and service, enhancing, at the same time, demand for ICT.</p> <p>E-Commerce Park offers acceleration and incubation facilities and services with the aim to provide not just logistical and economic advantages, but also to create a community with a place where knowledge and know-how is shared. This is a private initiative of two successful entrepreneurs and investors, Dan Nilsson and Karsten Deppert, who are acknowledged as the e-commerce veterans.</p> <p>The region of Helsingborg city, in the south of Sweden, has one of the highest density of e-commerce companies. This ensures that competences on the suppliers side is high, and gives easy access to both marketing, tech, legal and administration tasks with good knowledge of the Swedish or Nordic e-commerce sector. The E-commerce Park is located at the Port of Helsingborg, one of the major container harbours in the Nordics, with direct rail access as well as good road access. The location and facilities of E-commerce Park of Sweden make it an ideal spot for any e-commerce store targeting Sweden or the Nordics. The proximity to Denmark also makes the location a good choice, as well as good connection to Norway. This makes the three biggest e-commerce markets in the Nordics within reach.</p>
<p>OBJECTIVES</p>	<p>The objective of the E-Commerce Park of Sweden is to enable a scale up of new businesses and jobs, with an outreach towards Norway and Denmark.</p>
<p>RELEVANCE FOR OTHER REGIONS</p>	<p>E-commerce Park of Sweden is a place where e-commerce companies can expand by leveraging from knowledge and partnership with top Swedish SEO and SEM companies and logistical partners, as well as lawyers and accountants with e-commerce specific experience.</p>
<p>BENEFICIARIES</p>	<p>SME's, University students, "wanna-be-entrepreneurs" from the Nordic countries.</p>
<p>MODE OF SUPPORT</p>	<p>E-Commerce Park of Sweden has three main pillars:</p> <ol style="list-style-type: none"> 1) office-space, 2) warehouses and logistics centre, 3) an incubation programme. <p>Services can be taken individually or combined, depending of the needs and size of the companies.</p> <p>The E-Commerce Park represents a one stop shop for SME's. Due to logistics and competence provided, SME's are enabled to grow and expand their business faster and with less capital. Proximity to suppliers allows e-retailers to move fast. The combination of vendors, suppliers and companies in one location, contributes to the strengthening of networks in the region aiming at interlinkages with the other two e-commerce markets, Norway and Denmark.</p>
<p>FUNDING MODEL</p>	<p>The E-commerce Park is a private initiative itself. The incubator is mainly financed by partner companies of the Park.</p>

<p>ELIGIBLE COSTS</p>	<p>Start-up and operating costs until the revenue is generated (payrolls, building costs and maintenance, costs of providing services to tenants, other costs, e.g. utilities, equipment, supplies etc.).</p>
<p>HOW TO IMPLEMENT SUCH A MEASURE AND PITFALLS TO AVOID</p>	<p>A key success factor for an initiative like the E-commerce Business Park is the identification of a clear value proposition to enable promoters to design services and position the project within an international dimension. Location and advantages related to access to markets and logistic hubs are important factors to be properly evaluated.</p> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; width: 100%; justify-content: space-between;"> <div style="width: 48%; background-color: #4a4a9a; color: white; padding: 10px; text-align: center;"> <p>DO Look for a strategic location</p>  </div> <div style="width: 48%; background-color: #e64a4a; color: white; padding: 10px; text-align: center;"> <p>DON'T Forget the community</p>  </div> </div> <div style="display: flex; width: 100%; justify-content: space-between; margin-top: 10px;"> <div style="width: 48%; font-size: small;"> <p>For any e-commerce store targeting Sweden or the Nordics, a good location is a must. Giving the large areas of the country, there are only a few places that really excell.</p> </div> <div style="width: 48%; font-size: small;"> <p>The aim is to give not just logistical and economical advantages, but also to create a community and a place where knowledge and know-how is shared.</p> </div> </div> <div style="display: flex; width: 100%; justify-content: space-between; margin-top: 10px;"> <div style="width: 48%; background-color: #4a4a9a; color: white; padding: 10px; text-align: center;"> <p>DO Strive for scaling up</p>  </div> <div style="width: 48%; background-color: #e64a4a; color: white; padding: 10px; text-align: center;"> <p>DON'T Underestimate the power of clusters</p>  </div> </div> <div style="display: flex; width: 100%; justify-content: space-between; margin-top: 10px;"> <div style="width: 48%; font-size: small;"> <p>Partnerships with top Swedish companies, translation companies and logistical partners, as well as lawyers and accountants with e-commerce specific experience, to make it easy to expand into the Nordics.</p> </div> <div style="width: 48%; font-size: small;"> <p>This ensures that competences on the suppliers side is high, and gives easy access to both marketing, tech, legal and administration tasks with good knowledge of the Swedish or Nordic e-commerce sector.</p> </div> </div> <div style="display: flex; width: 100%; justify-content: space-between; margin-top: 10px;"> <div style="width: 48%; background-color: #4a4a9a; color: white; padding: 10px; text-align: center;"> <p>DO Offer multiple solutions</p>  </div> <div style="width: 48%; background-color: #e64a4a; color: white; padding: 10px; text-align: center;"> <p>DON'T Use a rigid approach</p>  </div> </div> <div style="display: flex; width: 100%; justify-content: space-between; margin-top: 10px;"> <div style="width: 48%; font-size: small;"> <p>It is possible to locate offices there, to locate warehouse and logistics, or to be part of the incubator program. All three of these can be combined.</p> </div> <div style="width: 48%; font-size: small;"> <p>The idea is to promote flexibility to growing companies, who can rent warehouse space on a per-square meter basis (a good solution for those who run on a seasonal sales cycle.)</p> </div> </div> </div> <p>E-commerce Park as a measure should be designed to support and be part of a broader strategic framework – either territorially orientated or focused on particular policy priorities (e.g. development of clusters and centers of excellence), or a combination of these factors. These type of facilities should not be the stand-alone entities but rather work alongside other organisations and schemes to promote broader strategies.</p> <p>Typically such a measure involves Parks and its incubators acting as a link be-</p>

	<p>tween centres of R&D excellence and business, commercialising R&D, helping to develop the supply chains for industrial clusters, promoting SME competitiveness, and in some cases, a more specialised role, e.g. addressing social inclusion by helping disadvantaged communities to engage in entrepreneurial activity or promoting other territorially focused priorities.</p> <p>During the development phase, it is important for the market to be tested. The outcome should be a business plan setting out the rationale for the project, target market, expected levels of demand, a detailed operating framework (infrastructure and services), estimated capital investment and running costs/sources of funds, how the incubator will be managed, and other factors. The Park shall be managed in a business-like manner with the aim of maximising value for money.</p> <p>The quality of the management team, and adoption of a business-like approach to running incubators and monitoring clients, is crucial to performance and best practices in this field are becoming standardised.</p> <p>As for the funding model, combination of the public and private funding is recommended. According to the conducted research, the estimated funding needed to cover the operational cost of the Park is in between EUR 5-7 million.</p>
ENGAGEMENT OF STAKEHOLDERS	Successful entrepreneurs, investors, business angels, academia, public and private sector, e-commerce SME's.
TIMELINE	<ul style="list-style-type: none"> • 2015: Opening. The estimated length of time required for establishment of the Park is 2-3 years.
MONITORING OF RESULTS AND THE IMPACT	Monitoring shall be based on the KPI's (Key Performance Indicators), which in this case are based on the following outputs: sales, marketing and the customer service.
AWARENESS RAISING AND COMMUNICATION	<p>The designed web page as a tool for promotion of activities is the essential requirement. Park's web portal, http://ecommercepark.se/ is well structured and provides information about activities related to the three pillars.</p> <p>However, this type of initiatives shall be further promoted by a wide range of organisations from the public and private sectors including local authorities, universities, companies, and financial institutions for the uptake of the activities as well as for securing of the potential funding resources.</p>
LINKS	<ul style="list-style-type: none"> • http://ecommercepark.se/english/

e-Commerce PARK

WHAT

E-Commerce Park in Sweden offers acceleration and incubation facilities and services with the aim to provide not just logistical and economic advantages, but also to create a community.

WHO

The incubator is mainly financed by partner companies of the Park.

2015

On January, E-Commerce Park has officially opened its doors.



Three main pillars:
1) office-space,
2) warehouses and logistics centre
3) an incubation programme

2016

The ecommerce cluster should be running in February 2016 and within five years it should provide 400 new job

KEY FACTS

1



2.000 sqm
office space

2



5.000 sqm
warehouse

3



Located in the
harbour of
Helsingborg

4



Partners w/
top SEO-SEM
companies

5

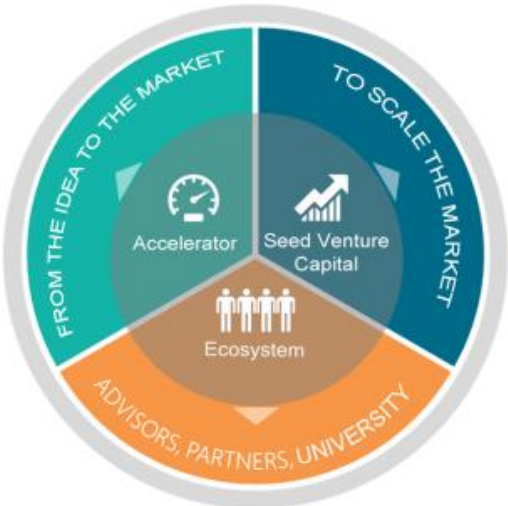


Gateway to
the Nordics







3.4. LUISS ENLABS, ROME, ITALY

<p>DESCRIPTION</p>	<p>Luiss EnLabs is a startup accelerator based in Rome, Italy, and operated by LVenture Group, a publicly listed venture capital company that provides their startups with seed funding and network.</p> <p>Luiss Enlabs was formed in 2012 as a joint venture with Luiss University. It represented the first case in Italy, in which the university, venture capital, and an entrepreneurial ecosystem have been interlinked.</p> <p>The admission process for startups is held twice a year. Startups are selected with the help of a board of advisors (experts and entrepreneurs from different sectors). The programme lasts 5 months, in which startups physically move to the Luiss EnLabs workspace and are assisted and monitored on a daily basis.</p> <p>Key aspects:</p> <ul style="list-style-type: none"> • Equity participation in innovative startups (from 50k Euros to 250k Euros seed capital investments spread out in various portions to maximize the return) • Company listed on the MTA of Borsa Italiana Stock Exchange • Leveraging Italian landscape, excellent human capital and tax incentives for investors • High earning potential for investors (entering companies at low valuations to obtain high returns) • Strategic Location in Rome Termini Train Station <p>Standard support package for startups:</p> <ul style="list-style-type: none"> • 30 k cash • 30 k services • Modern co-working space • Committed advisors • Business tuning and development • Entrepreneurship courses • Consultancy • Business networking • Investor networking
<p>OBJECTIVES</p>	<p>The mission is that of supporting the startups during their process of growth and development in order to make them succeed in their field. LVenture Group, one of the first venture capital companies in Italy listed on the Stock Exchange, provides the acceleration programme with financial resources.</p> <p>Main goals of Luiss Enlabs:</p> <ul style="list-style-type: none"> • Investing seed capital in early stage startups • Supporting startups by accelerating their development, monitoring their results and attracting other investors • Expected high capital gains from exits <p>Future plans, starting from 2016:</p> <ul style="list-style-type: none"> • Deal flow: expand internationally (400 investment proposal annually) • Portfolio: investing in 15 startups every year <ul style="list-style-type: none"> ○ 12 startups selected for acceleration programme and 60k Euros grants ○ 3 seed stage startups are selected for portfolio investment up to 250 k Euros

	<ul style="list-style-type: none"> ○ 7 startups receive follow up investments up to 250k Euros after the acceleration programme • Ecosystem: expand partnerships with SMEs • Investments: Invest 5m in startups with 10m from co-investors • Occupation: create 150 new jobs every year • Location: expand workspace to expand the tech hub in Rome and create a global network • 6 startups accomplish exit after the 6 months
<p>RELEVANCE FOR OTHER REGIONS</p>	<p>The digital economy is growing at an incredible speed and new opportunities are being created every day. The internet is fostering the birth of innovative startups that generate high returns. Furthermore, digital startups need low initial capital for their business to take off but very strong domain expertise and growth support. Last but not least, investors are attracted by investments in startups that can generate significant returns with high margins</p> <p>A startup incubator/accelerator can have a major impact in the region in the following fields:</p> <ul style="list-style-type: none"> • Create local jobs • Foster entrepreneurial climate • Commercialise technology • Diversify local economies • Build/accelerate local industry growth and retain firms in community • Encourage minority or female entrepreneurship • Generate revenue • Revitalize impoverished neighbourhoods • Move people from welfare to work
<p>BENEFICIARIES</p>	<p>Entrepreneurs, Regions / communities.</p>
<p>MODE OF SUPPORT</p>	<p>The admission period for the acceleration programme takes place twice a year. The numerous projects that are submitted via call for application, which is widely advertised through traditional and online media, are put under a scrupulous selection process, run by the acceleration analysts in collaboration with the LVenture Group Investment Team.</p> <p>Subsequently, the acceleration programme takes place over five months. Over the course of the programme, startups are required to follow an XMP style management approach and are entered into the network and ecosystem of sponsors & partners that operate around the accelerator.</p> <p>LVenture Group finances startups participating in the acceleration programme with an initial micro-seed investment of 60,000 Euro as a portion of capital, enough to cover the opening costs. This first investment, accompanied by the skills of the advisors, provides the selected projects with the “smart money” necessary to speed up the time to market. The acceleration programme ends with the ‘Investor Day,’ an event during which all the startups participating in the programme present their projects to a wide range of investors and experts in the sector.</p>

	<p>Key steps of the process:</p> <ol style="list-style-type: none"> 1. The accelerator nurtures startups in the initial stages 2. Startups are supplied with the initial capital to acquire customers and start sales 3. The ecosystem created, supports startups in their growth and in their search for clients, partners and investors 
<p>FUNDING MODEL</p>	<p>Joint venture between private investors and Luiss University.</p>
<p>ELIGIBLE COSTS</p>	<p>Pre seed, micro seed and seed investments into startups</p>
<p>HOW TO IMPLEMENT SUCH A MEASURE AND PITFALLS TO AVOID</p>	<p>Integration into larger community:</p> <ul style="list-style-type: none"> • Part of overall community economic development plan • Community/sponsor support for mission and operations <p>Effective team:</p> <ul style="list-style-type: none"> • Professional management with adequate pay • Network of business advisors, mentors and consultants • Emphasizes client assistance • Models good business practices • Strives for financial sustainability • Measures effectiveness and impact regularly • Ensures that appropriate services and space are available for incubator graduates and other second-stage companies in all communities where incubation programmes operate <p>Policy opportunities:</p> <ul style="list-style-type: none"> • Widen the scope of government funding programmes to support incubators • Standardize outcome measures across the industry • Tailor new incubators to the needs of local communities rather than applied as a bureaucratic solution from above

- Improve local, regional and national support for seed, angel and venture capital funding
- Consider spending and taxing policies that help foster innovation and reduce costs for new high-growth businesses
- Require or encourage recipients of government research and contracting dollars to form collaborative agreements with incubators that operate within their region

<p>DO Leverage Policy opportunities</p> 	<p>DON'T Rely only on internal experts</p> 
<p>Widen the scope of government funding programs to support incubators and consider spending and taxing policies that help foster innovation and reduce costs for new high-growth businesses</p>	<p>Experienced advisors are a key resource for startups in the early stage phase</p>
<p>DO Connect the ecosystem</p> 	<p>DON'T Waste time</p> 
<p>EnLabs represented the first case, in Italy, in which University, Venture Capital, and entrepreneurial ecosystem have been connected.</p>	<p>The seed investment, accompanied by the skills of the advisors, provides the selected projects with the "smart money" necessary to speed up the time to market.</p>
<p>DO Set up a great location</p> 	<p>DON'T Loosen the grip</p> 
<p>Ensure that appropriate services and space are available for incubator graduates and other second-stage companies in all communities where incubation programs operate</p>	<p>Digital startups need low initial capital for their business to take off but very strong domain expertise and growth support.</p>

ENGAGEMENT OF STAKEHOLDERS

- Luiss EnLabs successfully engaged important stakeholders to support its startups:
- Microsoft BizSpark: BizSpark gives Startups fast and easy access to Microsoft's current full-featured development tools, platform technologies as well as production licenses to bring to market innovative and interoperable solutions for the next generation of user experiences.
 - IBM: SoftLayer provides Infrastructure-as-a-Service to leading-edge customers ranging from Web startups to global enterprises and can give high performance without sacrificing control and security. IBM Bluemix™ is an open standards platform that lets developers build, run and manage all kinds of apps. Bluemix brings a full suite of cloud services to one place. So whether

	<p>you're creating apps for the web, for mobile or for analytics, Bluemix can help build them smarter and get them to market faster</p> <ul style="list-style-type: none"> • SimilarWeb: SimilarWeb provides advanced competitive analysis solutions for websites and applications. You can choose between different packages and plans which includes website analysis, app analysis or a combination of the two
TIMELINE	<ul style="list-style-type: none"> • 2010: Founded • 2012: Partnered with Luiss Guido Carli University • 2013: Creation of venture capital fund • 2014: Entering stock exchange • 2016: International expansion
MONITORING OF RESULTS AND THE IMPACT	<p>Milestones achieved:</p> <ul style="list-style-type: none"> • Deal Flow: 1500 investment proposals • Portofolio: 33 startups in portfolio (average investment of 130 k) • Ecosystem: 55 advisors, 25 partners, 200 events, 10000 participants • Investments: 4.4 millions invested in startups, 11.1 millions by co-investors • Occupation: Over 300 jobs created in the startups • Location: 2.000 sqm in Termini
AWARENESS RAISING AND COMMUNICATION	<p>CB Insights awarded in 2014 LVenture Group as most active Venture Capital in Italy, and among the top 20 most active tech Venture Capitals worldwide.</p>
LINKS	<ul style="list-style-type: none"> • http://luissenlabs.com/

LUISS EnLabs

WHAT

Luiss EnLabs is a startup accelerator based in Rome, Italy, and operated by LVenture Group, a publicly listed venture capital company that provides their startups with seed funding and network.

WHO

Luiss EnLabs was formed as a joint venture with Luiss University.

2012

Strategically located inside Termini Train Station



The first case in Italy, in which the university, venture capital, and an entrepreneurial ecosystem have been interlinked.

2015

The admission process for startups is held twice a year. Startups are selected with the help of a board of advisors. The programme lasts 5 months, in which startups are assisted and monitored on a daily basis.



KEY FACTS

1



+1500
Investment
proposals

2



33 startups in
portfolio

3



4.4 M invested
11.1 M by
coinvestors

4



+300 jobs
created

5



2.000 sqm
location

4. STRENGTHENING ICT APPLICATIONS FOR E-GOVERNMENT, E-LEARNING, E-INCLUSION, E-CULTURE AND E-HEALTH

ICT has been recognized as one main revenue stream for telecom industry, and is widely used in many fields, such as government, automobile, health and some others.

ICT applications, such as e-Government, e-Commerce, e-Education, e-Health, e-Culture and others are seen as enablers for development, as they provide an efficient channel to deliver a wide range of basic services in remote and rural areas. ICT applications

can facilitate the achievement of millennium development targets, by reducing poverty and improving health, but also others, e.g. in the field of education, administration, and the environment in disadvantaged areas as well as in the developing countries. As above-mentioned, several ICT applications have enormous potential to benefit



people's everyday lives and address social challenges, such as the reduction of energy consumption, the support of ageing citizen's, the improvement of health services and offer better services from public institutions. Besides this, ICTs can also drive forward the digitization of the cultural heritage from Europe providing online access for all. Given the right approach, context and implementation processes, investments in ICT applications and tools can result in productivity and quality improvements. In return, e-applications may liberate technical and human capacity and enable greater access to basic services.

E-Government is one of the driving forces for ICT Strategy (e-strategies) development and implementation. All key stakeholders including the government, private sector, and citizens benefit from successful implementation of ICT e-strategies.

4.1. E-RESIDENCY, ESTONIA

<p>DESCRIPTION</p>	<p>e-Estonia is an initiative of the government of Estonia to facilitate citizen interactions with the state through the use of electronic solutions. E-services created under this initiative include e-Elections, an e-Tax Board, e-Business, e-Banking, e-Ticket, e-School, University via internet, the e-Governance Academy, as well as the release of several mobile applications.</p> <p>Thanks to e-Estonia, the country has become the first one to offer e-residency to people around the world, providing state-proven digital identities that give access to services like online banking, education, and healthcare. e-Residency consists essentially in opening the services provided under e-Estonia framework to foreigners. The issuing of smart ID cards has begun towards the end of the 2014.</p> <p>e-Residents receive a smart ID card which provides:</p> <ul style="list-style-type: none"> • digital identification and authentication to secure services • digital signing of documents • digital verification of document authenticity • document encryption <p>e-Residency through the digital signature device allows users to:</p> <ul style="list-style-type: none"> • Digitally sign documents and contracts • Verify the authenticity of signed documents • Encrypt and transmit documents securely • Establish an Estonian company online within a day • Administer the company from anywhere in the world • Conduct e-banking and remote money transfers • Access online payment service providers • Declare Estonian taxes online <p>As far as SMEs are concerned, by obtaining the e-Residency, the company formation process becomes faster and simpler. In Estonia, an entrepreneur may create a company through a completely bureaucracy-free process directly on his personal computer. The e-business portal's record for the set-up and registration of a company is 18 minutes. The system also recognises ID cards from other countries (Belgium, Portugal, Lithuania, and Finland, and work is currently underway to enable increasing numbers of other nations' citizens to electronically register businesses in Estonia).</p>
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<p>OBJECTIVES</p>	<p>The goals are:</p> <ul style="list-style-type: none"> • To support Estonian economy and society in globalization • To profile Estonia as a leading E-country in the world • To foster new B2B customer opportunities • To make Estonia an attractive business environment within EU • To improve efficiency in doing business
<p>RELEVANCE FOR OTHER REGIONS</p>	<p>National boundaries are becoming less relevant. People and capital are becoming more mobile and are attracted to where they can thrive. e-Residency contributes to improving the attractiveness of the country towards SMEs, talents and entrepreneurs. Since the introduction of e-residency, several start-ups are already working remotely, with teams being based across continents. Entrepreneurs can start a legal entity in Estonia and use the country’s tax and banking systems and work completely from elsewhere. It enables a new way of working and capturing market opportunities.</p> <p>The scheme’s advantages are multiple:</p> <ul style="list-style-type: none"> • attract investment: once you have an Estonian ID, setting up a company there takes only a few minutes • create an electronic diaspora all over the world with a stake in the country’s survival. (Finland and other countries are adopting the Estonian system completely or in part.) <p>It should be noticed that the European Union has passed an Electronic Identification and Trusted Services Directive (eIDAS). Soon, EU member states will be required to recognize the digital identity providers of all other EU states, and allow them access to local digital services. For most EU countries, a sufficiently secure e-ID is still quite distant. Therefore, Estonian e-residence provides a good alternative for accessing the digital services of both the EU and Estonia, even for EU citizens.</p>
<p>BENEFICIARIES</p>	<p>The primary target groups of the e-Residence are:</p>

	<ul style="list-style-type: none"> • Foreign investors and the foreign employees for their companies; • Foreigners who serve on the Boards of companies (Management Board or Board of Directors), or hold a stake in the corporation; • Foreign specialists and employees of Estonian companies, their foreign customers and partners; • Foreign scientists, educators and students; • Representatives of other countries and international institutions (e.g. the European IT Agency) in the Republic of Estonia; • Estonian nationals and their heirs who have emigrated from Estonia; • The family members of the persons above. <p>The target group includes all current and future e-service users in Estonia – from those looking for investment management to consumers of cross-border medical services, etc.</p> <p>These target groups have a remarkable economic impact on Estonia. Companies with foreign ownership stakes are a key part of the Estonian economy: they account for 60% of all exports, 36% of employment, 35% of T&A ads, and 45% of the value added in the economy. Partially foreign-owned companies form around 10% of all companies doing business in Estonia, and 24% of companies that employ more than 20 people. E-residence will make it easier for companies important for Estonia to operate, and will attract them to the Estonian economic environment.</p>
<p>MODE OF SUPPORT</p>	<p>e-Residency provides state-proven digital identities allowing them to:</p> <p>Establish a company online: Steps for registering a company:</p> <ol style="list-style-type: none"> 1. Contact a service provider to get a legal address in Estonia. Work progressively for quicker and more cost-efficient possibilities on how to get the required address. 2. Register a company online at the Company Registration Portal <p>Open a bank account in Estonia: Steps for opening a bank account:</p> <ol style="list-style-type: none"> 1. Visit a bank in Estonia - LHV, Swedbank, or SEB 2. Wait for the bank’s approval and contract 3. Sign the contract digitally and e-mail the bank <p>Administer a company online:</p> <ul style="list-style-type: none"> • Company e-administration from anywhere around the world • No need to hire and trust a local director or representative (unless you want to!) • State-provided online accounting software <p>Steps for administering a company:</p> <ol style="list-style-type: none"> 1. Manage a company online in e-Business Register 2. Declare taxes at the e-Tax Board 3. Use state provided online accounting software

	<p>Digitally sign documents and contracts:</p> <p>Steps for signing documents digitally:</p> <ol style="list-style-type: none"> 1. Download free DigiDoc software for digital signature 2. Find the ID-card reader in the e-Residency starting kit and plug it in to your computer 3. Sign documents using the DigiDoc software 4. E-mail digitally signed documents to your partner for signing.
FUNDING MODEL	State budget.
ELIGIBLE COSTS	The e-residency scheme, had an implementation cost of 500.000 Euro, is currently directly managed by the Government. The project is led by the vice chancellor of communications and state information systems in the Ministry of Economic Affairs and Communications, managing a staff of seven officials.
HOW TO IMPLEMENT SUCH A MEASURE AND PITFALLS TO AVOID	<p>Estonia has invested in a policy initiative that gives its citizens and residents access to thousands of services online, including managing their banking, registering a new business, signing contracts, reviewing medical records, voting, and much more. The cornerstone of this system is a digital identity, provided by the Estonian government. E-residency. Foreigners who obtain e-residency are able to interact with Estonian administration and private players to register and manage an Estonian business, file Estonian taxes, sign contracts, and open bank accounts.</p> <p>Estonia's system uses suitably hefty encryption. Only a minimum of private data is kept on the ID card itself. Lost cards can simply be cancelled. And in over a decade, no security breaches have been reported. Two PIN codes are also issued, one for authentication (proving who the holder is) and one for authorisation (signing documents or making payments). When asked to authenticate a user, the service concerned queries a central database to check that the card and relevant code match.</p> <p>e-Estonia and, consequently, e-Residency are based on the X-Road environment. Launched in 2001, X-Road connects all the decentralized components together. This is what enables Estonia's various databases and registers, whether public or private, to link up and operate irrespective of what individual platform they use. One of the key elements of e-Estonia is that its databases are decentralized, which means:</p> <ul style="list-style-type: none"> • There's no single owner or controller. • Every government agency or business can choose the right product for them. • Services can be added one at a time, as soon as they are ready. • X-Road is the all-important connection between these databases, the tool that allows them to work together for maximum impact. All of the Estonian e-solutions that use multiple databases, use X-Road. <p>Originally X-Road was a system used for making queries to the different databases. Now it has developed into a tool that can also write to multiple databases,</p>

transmit large data sets and perform searches across several databases.

DO
Use a decentralized system



Create a decentralized, distributed system so that all existing components can be linked and new ones can be added, no matter what platform they use

DON'T
Use an unuseful database



Try to force everyone to use a centralized database or system, which won't meet their needs and will be seen as a burden rather than a benefit

DO
Smart purchases



Be a smart purchaser, buying the most appropriate systems developed by the private sector

DON'T
Contract large projects



Waste millions contracting large, slow development projects that result in inflexible systems

DO
Use working systems



Find systems that are already working, allowing for faster implementation

DON'T
Waste time



Rely on pie-in-the-sky solutions that take time to develop and may not work

ENGAGEMENT OF STAKEHOLDERS

In September 2015, the government teamed up with a privately owned incubator and hacker space in Tallinn, Garage 48, to host the very first 'e-residency hackathon', aimed at developing existing services as well as working prototypes of new ones in an intense 48 hours of inspiration and hard work.

The scheme has also attracted criticism and been disparaged as a PR stunt to publicise the former Soviet Republic's changing image. Critics also fail to see the point of digital residency if it's not linked to any level of physical residency benefits and have expressed worry about privacy issues as the Estonian government ends up holding so much data about its e-residents.

TIMELINE

- **2000:** Estonia's digital signature system has paved the way for some of its most useful e-services including: Company Registration Portal, the nation's i-voting system, electronic tax filing and DigiDoc – essentially any services that require signatures for their validity.
- **2001:** X-Road is the backbone of e-Estonia. It's the invisible yet crucial environment that allows the nation's various e-services databases, both in the public and private sector, to link up and operate in harmony.

	<ul style="list-style-type: none"> • 2002: Introduction of electronic ID cards, the mandatory national card serves as the digital access card for all of Estonia's secure e-services. • 2005: Since 2005, everyone in Estonia has had the opportunity to vote electronically via the internet. Using an ID card or mobile ID, a voter may cast his vote from home or even while traveling abroad. • 2007: Introduction of Mobile-ID service that allows a client to use a mobile phone as a form of secure electronic ID. • 2008: Launch of e-Health system. The Electronic Health Record is a nationwide system that integrates data from Estonia's different healthcare providers to create a common record for each patient. • 2010: In January of 2010 Estonia began using a medical information system with which people can view their own digital medical history. • 2012: As of January 2012, more than 1.1 million people in Estonia (almost 90% of inhabitants) have ID cards. The Estonian ID card serves as an identity document and, within the European Union, also as a travel document. In addition to its physical use, the card is also used as proof of ID when utilising online services. In other words, the ID card is the key to almost every innovative e-service in Estonia. • 2014: The Parliament approved the e-Residency in Apr 2014. Firstly, starting from Dec 2014, the application process and the withdrawal of the pack had to be made in person in Estonia. The fee for the application is 50 Euros per person. • 2015: The application process for the e-Residency went online from May 2015 and the withdrawal of the pack has been made available at Estonian embassies/consulates around the world.
<p>MONITORING OF RESULTS AND THE IMPACT</p>	<p>By August 2015, about 4,000 e-Residency requests were submitted and accepted in almost 80% of cases. Applicants come from nearly 90 countries around the world: Russia and Finland are at the top of the listing due to the number of applications submitted; Italy is at the bottom of this rank.</p> <p>The Economic Affairs Ministry announced that applications were booming. While the goal was originally set at 2,000 applications by the end of 2015, Estonia received almost double that number of applications from 73 countries by the end of July.</p> <p>Before launching e-Residency, Estonia promoted an impact assessment of its citizens, who were already benefiting from the same e-services, in order to evaluate the results achieved. The impact was measured on three target groups:</p> <ol style="list-style-type: none"> 1) users (citizens and enterprises), 2) service providers, 3) ICT companies developing the e-services (especially in relation to export). <p>The users of e-services stated that the examined services have had a positive impact on them: the services helped them to save a lot of time and made the government more accessible. For 12 of the 15 services studied, over 80% of users confirmed that they consider using the online version of the public service much easier.</p>

	<p>The top three e-services that displayed the biggest savings in time compared to regular offline services were:</p> <ol style="list-style-type: none"> 1) establishing a company, 2) submitting tax reports (VAT, income or social tax), 3) e-voting. <p>The overall opinion of users is that all of the 15 services have become more accessible and easier to use. The online submission of tax returns to the Estonian Tax and Customs Board and the e-service of the Estonian Agricultural Registers and Information Board stand out as having the biggest impact on accessibility compared to offline services. Benefits derived from no longer having to visit various government agencies physically or having to obtain information from several separate information systems.</p> <p>The Economic Affairs Ministry expects a 60-million-euro cash injection into Estonia's economy by the time it has 30,000 e-residents and hopes to have as many as 60,000 e-residents by the end of 2017. The ultimate goal is set at 10 million e-residents by 2025 - nearly 10 times the number of its current number of citizens, and a potentially massive push for the economy.</p>
<p>AWARENESS RAISING AND COMMUNICATION</p>	<p>The government promoted the scheme by launching a dedicated web portal (http://e-resident.gov.ee/) and a dedicated Twitter account (https://twitter.com/e_residents), to leverage the interaction with beneficiaries.</p>
<p>LINKS</p>	<ul style="list-style-type: none"> • https://e-estonia.com/e-residents/apply/

eResidency ESTONIA

WHAT

e-Residency provides state-proven digital identities allowing foreigners to access Estonian e-Services

WHO

The scheme is managed by the Government. The project is led, as a start-up, by the vice chancellor of communications.

2014

Launch of the e-Residency.



As far as SMEs are concerned, by obtaining the e-Residency, the company formation process becomes faster, through a bureaucracy-free process.

2015

The Economic Affairs Ministry announced that applications were booming. While the goal was originally set at 2,000 applications by the end of 2015, Estonia received almost double that number of applications by the end of July.



KEY FACTS

1



+ 4.000 applications

2



80% acceptancy rate

3



60 M € cash injection expected

4



eResidents to be 10x actual residents

5



18 secs record for registering a company

4.2. SMART CITY INITIATIVE LIVING LAB, KANSAS CITY, USA

<p>DESCRIPTION</p>	<p>Pilot project around a mobile platform for citizen access and infrastructure sensing, citizen engagement facilitated by digital interactive kiosks and mobile applications, smart street lighting and video surveillance.</p> <p>The initiative also enables access for Kansas City to the Cisco Smart+Connected Communities (S+CC) reference architectures and provides a framework for defining and evaluating various related initiatives.</p> <p>Kansas City and Cisco signed an agreement to deploy a Smart+Connected City framework to transform urban services and enhance the citizen experience.</p> <p>As part of this new framework, Cisco is working with a group of business partners to bring together an ecosystem to develop applications including smart lighting, digital kiosks, a development data portal, and smart water innovation development. Through this model in Kansas City, the goal is to create a framework to be scalable, repeatable, and self-sustainable.</p> <p>In addition, the telco operator Sprint will deploy Cisco hardware to construct and manage an intelligent Wi-Fi network that will serve as the backbone of the connectivity platform. Sprint is the first service provider to play an important connectivity role in the development of an U.S. based Cisco Smart+Connected Communities™ (S+CC) ecosystem.</p> <p>It is important to note that, beyond implementations, entrepreneurs may find value from the technology to further advance job opportunities. One example is that entrepreneurs and start-ups will be able to utilize the development data portal to create and test new apps.</p>
<p>OBJECTIVES</p>	<ul style="list-style-type: none"> • To deploy a Smart+Connected City framework to transform urban services and enhance the citizen experience. • To bring together an ecosystem to develop applications including smart lighting, digital kiosks, a development data portal, and smart water innovation development. To create a framework to be scalable, repeatable, and self-sustainable. • To construct and manage an intelligent Wi-Fi network that will serve as the backbone of the connectivity platform. <p>A Wi-Fi network provides the infrastructure for digital communication, enabling a wide variety of Smart City Solutions and services for residents and visitors. During Phase 1 of the effort, Sprint will deploy Cisco technology to construct and manage an intelligent Wi-Fi network. The City Wi-Fi provided by Sprint is intended to assist Kansas City in providing citizens with internet connectivity and access to a broad range of citywide services.</p> <p>New applications will be developed in the marketplace over time through the Living Lab partnership. The Living Lab adds to the entrepreneurial ecosystem in Kansas City which is already recognized both nationally and internationally for its tech startup community, supporting accelerator programmes, and gigabyte fiber network.</p>
<p>RELEVANCE FOR</p>	<p>Historically, emerging technologies, even if deemed to be highly useful and in de-</p>

<p>OTHER REGIONS</p>	<p>mand, have faced complex challenges to successful market deployment. The initial research and development phase is often very slow, expensive and seeks feedback from the end user market to determine if proper product-market fit has been achieved. The amount of time it takes is dependent on many factors to include competing technologies, participation from relevant parties and access to market forces. This first phase alone can take years, in which many companies can find this process both daunting and cost prohibitive, which in turn can have an adverse impact on the number of companies willing to go through this innovation cycle.</p> <p>The Living Lab will create an opportunity for entrepreneurs to build high growth companies, partner with large companies needing assistance and allow KCMO the ability to reap the financial and social benefits while improving the quality of life and reducing long terms costs.</p> <p>A Collaboration Agreement creates a framework of cooperation under which the parties can explore potential collaborative opportunities. This Collaboration Agreement will be an umbrella agreement under which they will undertake some or all of the activities identified:</p> <ul style="list-style-type: none"> • City Wi-Fi • Deployment and Operation of Smart+Connected City Services • Creation and Operation of Kansas City Living Lab.
<p>BENEFICIARIES</p>	<p>Citizens, entrepreneurs, businesses, tourists.</p> <p>The Living Lab will be a development data portal that will connect entrepreneurs to smart city data for rapid innovation of new applications that can be developed, built, tested and validated using Kansas City data before being launched in a full-scale, industrial-user environment.</p> <p>This will create an opportunity for entrepreneurs to build high-growth companies, partner with larger companies, and help Kansas City realize financial and social benefits of the Internet of Everything segment while aiming to enhance the city's quality of life.</p>
<p>MODE OF SUPPORT</p>	<p>Kansas City desires to engage Cisco to deploy its Smart+Connected Communities technologies to increase the level of the information and related services offered by the city and to foster innovation and entrepreneurship.</p> <p>In addition, Kansas City desires to bring to its citizens and visitors the benefits of its recently adopted open data policy pursuant to which public data, wherever feasible, will be open and freely available to all online in a machine-readable, open format that can be easily retrieved, downloaded, and reused utilizing readily-available and free web search applications and software.</p> <p>Specifically, Kansas City and Cisco have discussed deploying City Infrastructure Management and Enterprise Mobility Services Platform (ESMP) Solutions provided by Cisco and its ecosystem partners to offer increased visibility, utility, and convenience which may include but are not limited to the following services:</p> <ol style="list-style-type: none"> 1. Information Communications Technology (ICT) 2. City Kiosks and Mobile Applications 3. Outdoor Lighting Solutions 4. Water and Waste Management 5. Energy

	<p>6. Traffic Incident Management</p> <p>7. Parking</p> <p>8. Physical Safety and Security</p>
FUNDING MODEL	Public Private Partnership
ELIGIBLE COSTS	<p>USD 3.9 Million by Kansas City Mayor Office, KCMO.</p> <p>USD 12 Million in private investment by Cisco and its growing list of partners.</p>
HOW TO IMPLEMENT SUCH A MEASURE AND PITFALLS TO AVOID	<p>Cisco and its partners have evaluated the needs of the city departments and the existing infrastructure to propose a unique programme enhancing Internet connectivity, enabling efficiencies in management of public infrastructure, and introducing new revenue streams. This programme will also bring new economic development by attracting technology start-ups from across the globe to test their concepts.</p> <p>The key milestones to be achieved are:</p> <p>A Connected Platform</p> <p>Smart + Connected Communities is the Cisco smart city solution or intelligent networking that provides real-time information and services for city leaders to create more livable cities. The proposal ensures integration with existing KCMO systems to leverage prior technology investments</p> <p>Public Wi-Fi</p> <p>In partnership with a third-party provider, a new public Wi-Fi network is proposed for downtown that will provide basic Internet access to visitors and residents of the neighborhood for free. There is no cost to the taxpayer for the construction or management of this network beyond permit fees being waived and the third-party provider will maintain fifty percent of the network for its own use during the duration of the partnership. This Wi-Fi network will provide the connectivity necessary to support any smart city applications that KCMO may invest in to manage infrastructure along this corridor or adjacent districts.</p> <p>Community Kiosks</p> <p>One goal initially set with Cisco was to make the proposed smart city network accessible and valuable to visitors and residents who may not necessarily have personal access to a smart phone or other technology. The proposal includes placing 25 interactive digital kiosks with access to information about local amenities, including cultural events and entertainment, food, other businesses, and city services such as 311. These kiosks will be fully accessible and could potentially serve as a reverse alert system in case of emergency operations.</p> <p>City Post</p> <p>City Post, a NYC company, plans to open a local office to manage content and ensure these kiosks are maintained. These kiosks also allow for advertising which will provide new revenue for VisitKC and the KC Streetcar Authority.</p> <p>Video as a Sensor & Smart Lighting</p> <p>Cisco also proposes installing sensitivity sensors and integrated LED street light-</p>

ing which would be the basic sensor to capture data as needed for any future smart city application.

The Living Lab

The Living Lab is a joint proposal by Cisco and Think Big Partners for Kansas City to play a vital role in the innovation and commercialization of IoT technologies. Kansas City will have the opportunity to create a Living Lab, in which qualified and highly targeted emerging IoT technologies that could benefit the entire city can be deployed, tested and validated in a full scale industrial user environment.

<p>DO Public Private Partnerships</p> 	<p>DON'T Rely only on the government</p> 
<p>Put together public private partnerships in which each partner accepts a defined role and commits to carry it out in the best way possible; and then build on those that you can sustain.</p>	<p>Assume that you can lead an effort of this scale and complexity solely from the government sector.</p>
<p>DO Champion key technologies</p> 	<p>DON'T Forget to support the community</p> 
<p>Champion technology initiatives that are synergistic, catalytic and play to your city's strengths.</p>	<p>Neglect to include digital inclusion, educational attainment and economic mobility efforts to support the growth of your entire community through these initiatives.</p>
<p>DO Support entrepreneurs</p> 	<p>DON'T Limit the number of players</p> 
<p>Join the movement to support your local entrepreneurial community by utilizing the value of major private sector investments of innovation, and systems operations expertise.</p>	<p>Arbitrarily limit the number of public and private sector players that can participate in, and thus contribute to, your local initiatives.</p>

ENGAGEMENT OF STAKEHOLDERS

Kansas City is uniquely positioned to be a global leader in what it means to be an intelligent, socio-technical, digital city. Bloomberg Philanthropies recently selected Kansas City as one of the first eight cities chosen for What Works Cities, the organisations's new \$42 million initiative to help mayors and planners make the most of big data.

The public-private infrastructure agreements made with Google Fiber (2012), Cisco (2014), and Sprint (2015), among others, have given Kansas City a platform for innovation and economic development. The City and its industry partners have invested in core infrastructure, data performance and open data systems, computational interventions and digital services, creating a manifold path for exponential



















	<p>growth in regional technology innovation and instrumentation.</p> <p>To help foster innovation, Cisco plans to work with Think Big Partners and other innovative companies to manage a Kansas City “living lab” for entrepreneurial development. This lab will serve as an incubator for these open ecosystem participants and the start-up community to develop new solutions to address some of the city’s greatest challenges:</p> <ul style="list-style-type: none"> • Deployment of smart street lighting; • Smart video surveillance; • Environment and infrastructure sensing; and • Citizen engagement services solution.
TIMELINE	<ul style="list-style-type: none"> • 2011: Agreement with Google Fiber • 2012: Started the development of a playbook of creative ways the community can leverage the gigabit technology • 2012: Launch of KC Digital Drive, NGO with the aim of supporting technology projects • 2013: Kansas City hired its first Chief Technology Officer to help drive innovative strategies • 2014: Agreement with Cisco • 2015: Created, in April, a new Smart City Advisory Board, and in August, appointed the 11member board charged with recommending policies for the management and implementation of smart city technology, future smart city integration and establishing metrics for evaluating the success of the programme • 2015: Agreement with Sprint.
MONITORING OF RESULTS AND THE IMPACT	<p>The Smart+Connected City framework was first announced in May 2014 when Kansas City leaders and Cisco signed a letter of intent for the project. Later in 2014, Sprint explored joining the project to his own and operate the Wi-Fi network. Wi-Fi services and the Cisco Smart + Connected City framework are targeted to be available with the opening of the Streetcar Starter line in early 2016.</p>
AWARENESS RAISING AND COMMUNICATION	<p>The Living Lab will function as a marketing and operations centre, communicating to the community Kansas City's digital capabilities and desires, and making available information, developer tools, commercial opportunities, and partner programme activities.</p> <p>The parties expect that the Living Lab will provide regular updates and information to the newly-created Kansas City Smart City Advisory Board in order to assist the board in making recommendations or suggestions concerning Kansas City's smart city future.</p>
LINKS	<ul style="list-style-type: none"> • http://thinkbigpartners.com/ • http://thinkbigpartners.com/the-kansas-city-living-lab-where-innovation-meets-possibility/ • http://newsroom.cisco.com/press-release-content?articleId=1421702

4.3. DIGIPOST, NORWAY

<p>DESCRIPTION</p>	<p>Digital messages have become part of everyday life. The challenge is that each company has its own system and recipients must themselves seek out several e-mail accounts and log onto the websites of banks, insurance companies and public bodies.</p> <p>Norway Post's digital mailbox is intended to make it easy to send, receive, deal with and file important mail. The system that is established has the same security level as internet banks.</p> <p>Digipost is based on a person's street address and national ID number. It is not seen as an e-box initiative, but as a new postal system in the digital world. A high-level authentication and certification service is provided by using two electronic IDs that are already on the market, one provided by the banks and one by the national lottery. As such, around 70% of the Norwegian population already has a form of electronic ID and this is matched to the postal database. It is a legal requirement to inform Norway Post when changing address, which ensures the quality of the postal database. During the registration process, a customer chooses a password to log into the service. It is enough to have one's national ID number and a password to log in, but some letters need stronger identification to be opened, and in that case extra security can be added to the envelope, such as an additional PIN code or a token.</p> <p>The resulting electronic letters look the same as physical mail piece items, but as they are delivered on the web they include additional interactive elements. The value propositions for consumers are:</p> <ul style="list-style-type: none"> • One digital mailbox for all important mail • Ease of use • High security • Free of charge Senders • Cost efficient • Ability to be integrated with sender portals
<p>OBJECTIVES</p>	<p>In February 2014, the government decided that the public sector should now communicate digitally with Norway's inhabitants and companies. As a result, all private individuals must now obtain a digital mailbox.</p> <p>It was a challenge that decisions from a municipality to a resident, which is currently sent by e-mail, do not have a verified electronic signature of the sender. Lack of digital options for signatures results in more paper and more manual processes.</p> <p>In order to have a stronger position in the rapidly growing e-commerce market, a separate division for e-commerce has also been established. Growth in e-commerce means that the postal companies must be customer-friendly and competitive across national borders. The new division for e-commerce will ensure effective solutions for customers through effective use of the logistics network, both across borders and between the other divisions. E-commerce has experienced significant growth both nationally and internationally and is an important area for postal companies in the coming years. In the Nordic region 86 % of consumers shop online and 50 % of consumers shop outside their home country.</p>

<p>RELEVANCE FOR OTHER REGIONS</p>	<p>Overall Postal services suffer a significant decline because of the internet. People and businesses use more and more the internet leaving traditional mail only to the public and banking sector. This causes many problems financially, where regions and governments have to sustain and aid a non-profitable system, until the point where it leads to bankruptcy, job losses and the shutting down of post offices. Following the example of Norway's post, post services can upgrade by , finding more efficient ways to aid people and businesses, creating new jobs and minimizing timelines and bureaucracy.</p> <p>The EU Vision 2020 is an attempt to drive digitisation of the European economy and focus on longer-term value. The EU medium-term mission has also been set out; by 2015 all electronic identity-related processes offered in the EU, either publicly or privately, locally or cross-border, between administrations, businesses or citizens should be secure. These processes should be based on authenticated identity services when either needed or desired by one or both parties. Full respect must be given to the privacy protection regulations by all member states in the EU. IPC will take on a key role of monitoring EU initiatives in e-ID in order to keep members fully informed on the progress in the EU arena.</p>
<p>BENEFICIARIES</p>	<p>Privates, Businesses.</p> <p>In Digipost citizens can receive all types of mail digitally from businesses, individuals and government entities. Mail can be kept as long as needed and made available everywhere. They can upload important documents. personal archive will be safe and all files encrypted with the maximum security. Privates can get electronic receipts automatically each time they pay by card in the store. Over 4,000 merchants already send digital receipts with Digipost. Privates can pay invoices with just one click.</p> <p>Businesses can transmit personal data, health papers, payslips, invoices, and other sensitive information digitally, safely, easily and efficiently.</p> <p>Letters can be sent via web, from the business system in use, or by direct integration.</p> <p>Business can save up to 80% from normal post costs.</p>
<p>MODE OF SUPPORT</p>	<p>Through Digipost, users gain access to their own digital mailbox that can be used for safe communication between private individuals and private or public enterprises.</p> <p>Norway Post uses Signicat as supplier of digital identity and electronic signature solutions. Signicat specializes in this area, and has previously delivered solutions to government institutions, such as the Norwegian State Educational Loan Fund (Statens Lånekassen) and the Norwegian Public Service Pension Fund (Statens Pensjonskasse). The government agreement will boost the usage of electronic signatures in many areas.</p> <p>Further, there is great focus on adapting the range of services to new user requirements and Norway Post's digital postal system, Digipost, is an important part of this work. In June 2014 the Agency for Public Management and eGovernment (Difi) issued a recommendation that the public sector should begin to use solutions available in the market to distribute digital post instead of developing proprietary solutions.</p>
<p>FUNDING MODEL</p>	<p>Private initiative.</p>

	<p>The postal market in Europe was liberalised with effect from 01.01.2011 in accordance with the EU's Third Postal Directive. The Government has notified the EU Commission that Norway does not wish to implement this directive. The further reservation process and the consequences of such a reservation on Norway's part may have are still unclear. The Board of Directors considers the risk to be low that the EU will impose sanctions that will have an impact on Norway Post's activities outside Norway. Regardless of whether Norway says no to the EU Postal Directive, Norway Post will still have to adapt to the trend of falling letter volumes and adapt the business and service level to the changed use of postal services.</p>
<p>ELIGIBLE COSTS</p>	<p>Digitalization of traditional services, relying on new software development and already existing infrastructure</p>
<p>HOW TO IMPLEMENT SUCH A MEASURE AND PITFALLS TO AVOID</p>	<p>Norway Post made great efforts to gather input from senders and consumers alike during the development phase of the service. Early in the process they launched a site called labs.digipost.no to crowd source inputs, and also used social media platforms like Twitter and Facebook to spread the word and gather further input.</p> <p>The set up of digital mail boxes should allow users to:</p> <ul style="list-style-type: none"> • receive and keep mail from public authorities in one place, securely and free of charge • access your mail wherever and whenever you like • get SMS or e-mail notifications to let you know when important mail has been sent to your mailbox • get faster replies and information from public authorities • improve the environment and help reduce public spending • get and store mail from private contacts in the same place <p>Digital mailbox</p> <p>All residents of Norway who are over 15 years can register for an account of Digipost. It is based on a person's street address and national ID number, and the system has the same security level as internet banks. For customers who have used e-mails from banks, insurance companies and public institutions, now they only need to log into the Digipost account which combines all these different accounts. Post&Parcel reports that 300,000 Norwegians have opened its digital mailbox so far with about 3 million letters sent digitally through the mailbox in 2013. A number of companies, such as banks, insurance companies and health authorities have also used Digipost as their email solution.</p> <p>Cutting cost</p> <p>In 2013, 79 post offices were converted into retail agency-based outlets, Post in Shops, contributing to a 10.7% growth in mail operating results in Norway. This could back up the US's union leaders' proposal to open up post offices in Staples stores.</p>

	<table border="0"> <tr> <td data-bbox="523 280 954 459"> <p>DO Disrupt traditional sectors</p>  </td> <td data-bbox="960 280 1391 459"> <p>DON'T Forget different needs</p>  </td> </tr> <tr> <td data-bbox="523 459 954 616"> <p>Post services can upgrade, finding more efficient ways to aid people and businesses, creating new jobs and minimizing timelines and bureaucracy.</p> </td> <td data-bbox="960 459 1391 616"> <p>Some letters need stronger identification to be opened, and in that case extra security can be added to the envelope.</p> </td> </tr> <tr> <td data-bbox="523 631 954 810"> <p>DO Use a co-design approach</p>  </td> <td data-bbox="960 631 1391 810"> <p>DON'T Lose the opportunity to innovate</p>  </td> </tr> <tr> <td data-bbox="523 810 954 967"> <p>Norway Post made great efforts to gather inputs from senders and consumers alike during the development phase of the service.</p> </td> <td data-bbox="960 810 1391 967"> <p>Postal services globally suffer a significant decline because of the internet. People and businesses use more and more the internet leaving traditional mail only to the public and banking sector.</p> </td> </tr> <tr> <td data-bbox="523 983 954 1162"> <p>DO Leverage existing infrastructures</p>  </td> <td data-bbox="960 983 1391 1162"> <p>DON'T Go alone</p>  </td> </tr> <tr> <td data-bbox="523 1162 954 1319"> <p>Around 70% of the Norwegian population already has a form of electronic ID and this is matched to the postal database</p> </td> <td data-bbox="960 1162 1391 1319"> <p>Norway Post uses an external and experienced supplier of digital identity and electronic signature solutions.</p> </td> </tr> </table>	<p>DO Disrupt traditional sectors</p> 	<p>DON'T Forget different needs</p> 	<p>Post services can upgrade, finding more efficient ways to aid people and businesses, creating new jobs and minimizing timelines and bureaucracy.</p>	<p>Some letters need stronger identification to be opened, and in that case extra security can be added to the envelope.</p>	<p>DO Use a co-design approach</p> 	<p>DON'T Lose the opportunity to innovate</p> 	<p>Norway Post made great efforts to gather inputs from senders and consumers alike during the development phase of the service.</p>	<p>Postal services globally suffer a significant decline because of the internet. People and businesses use more and more the internet leaving traditional mail only to the public and banking sector.</p>	<p>DO Leverage existing infrastructures</p> 	<p>DON'T Go alone</p> 	<p>Around 70% of the Norwegian population already has a form of electronic ID and this is matched to the postal database</p>	<p>Norway Post uses an external and experienced supplier of digital identity and electronic signature solutions.</p>
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<p>Around 70% of the Norwegian population already has a form of electronic ID and this is matched to the postal database</p>	<p>Norway Post uses an external and experienced supplier of digital identity and electronic signature solutions.</p>												
<p>ENGAGEMENT OF STAKEHOLDERS</p>	<p>Municipalities started using Digipost for the distribution of energy bills</p> <p>Vestre Viken uses Digipost to send health information to their patients. With the aim of increasing patients' involvement in their own health, as well as streamline administrative processes in hospitals, Baerum Hospital has been running a pilot project at its medical department since February 2012. The pilot is completed, and the project is now being continued by the hospital. The letters sent in Digipost containing sensitive health and personal information about patients. Vestre Viken HF therefore requires that the recipient must verify their identity using two-factor authentication solutions (BankID or Buypass) to open your mailbox and access its contents.</p> <p>Diakonhjemmet Hospital : Diakonhjemmet Hospital uses Digipost to send the medical history of their patients</p> <p>There is an increasing demand for solutions to automate document processes. By adding digital signatures as an integrated feature in Digipost it will be possible to send lease contracts, preschool applications, employment contracts, as well as bank and insurance agreements.</p> <p>Since the launch of Digipost in 2011, Signicat identity solutions have been used for authenticating users. With the new solution, digital signatures from BankID will</p>												

	<p>be added.</p> <p>Signicat is the leading provider of electronic ID and digital signature solutions in Northern Europe. The company currently has over 200 customers within both the private and public sector. Signicat is a company in the Viking Venture portfolio.</p>
TIMELINE	<ul style="list-style-type: none"> • 2011 Digipost was launched • 2012 DNB Group signed up to Norway Post's digital mail • 2012 Vestre Viken and Diakonhjemmet Hospital used Digipost • 2014 Digipost was awarded as the public sector's digital mail supplier • 2015 Digipost offers digital signatures after an agreement with Signicat
MONITORING OF RESULTS AND THE IMPACT	<p>By first quarter 2015:</p> <ul style="list-style-type: none"> • 520.000 users • 2.100 senders • 4.000 stores • Changed 149 Post Offices into Shops • Norway Post distributed 3 million digital letters via Digipost in 2013 • Norway Post's goal was to win the contract to be the public digital mailbox. • With Digipost, users can have all their digital mail gathered in one mailbox • Digipost is now the preferred means of communication between the public sector and the citizens of Norway.
AWARENESS RAISING AND COMMUNICATION	<p>Digipost is available for free and regularly updated in the play store. The app has moderate number of users and is installed on about 75000 android devices. The app ranks on 13 top lists on Play Store around the world (Norway, Sweden, Denmark, Lithuania, Ukraine).</p> <p>Norwegian Post acquired its first customer by winning the contract to deliver an electronic signature solution and service to the public sector in Norway. The contract was awarded by the Agency for Public Management and eGovernment (Difi), following a public procurement process. The contract includes the development of a portal for signature services, as well as an API solution for integration with any portal. For government use, Norwegian Post will use ID-Porten, which is a central gateway for communication between citizens and the Norwegian government.</p>
DIGIPOST	<ul style="list-style-type: none"> • https://www.digipost.no/

Digipost

WHAT

Digital mailbox to make it easy to send, receive, deal with and file important mail.

WHO

Norway Post created Digipost in order to overcome the crisis of the postal services

2011

Launch of the service



Post services could upgrade, finding more efficient ways to aid people and businesses, creating new jobs and minimizing timelines and bureaucracy.

2014

Digipost was awarded as the public sector's digital mail supplier



KEY FACTS

1



+520.000 users

2



+ 2.100 senders

3



+ 4.000 stores

4



+3 Million digital letters in 2013







5



Turned 149 Post Offices into shops

4.4. MYSPHERA HOSPITAL LA FE, VALENCIA, SPAIN

<p>DESCRIPTION</p>	<p>Mysphere is a real-time locating system (RTLS) to track patients and assets and to allow hospital staff members to identify patients via mobile carts with built-in RFID readers.</p> <p>With Mysphera, it is possible to quickly locate any device needed, and it is also possible to avoid losses. These losses result from items being removed from the hospital due to theft, or from being misplaced or hoarded, thus making it necessary to order a replacement. Although the solution does not actually prevent theft, it can indicate if the crime has occurred, along with where that asset was last seen, thereby helping the hospital to identify any staff members who could be held responsible.</p> <p>Another aspect is the clinical safety in many processes by avoiding any possible adverse events regarding patient identification. It helps to improve the services delivered to the patients and to optimize workflow management, resulting in shorter waiting times.</p> <p>Mysphera Hospital features battery-powered RFID tags attached to assets and patient wristbands. Each tag transmits a unique ID number every two seconds via a 2.4 GHz signal. That signal is received by fixed beacons to determine the tag's location, and by mobile beacons connected to computers, which then display information about the patient wearing that tag.</p>
<p>OBJECTIVES</p>	<p>The objectives of the project were to increase patient safety, improve process efficiency and optimize resource management.</p> <p>The solution provides the hospital with a view into the locations of both patients and assets, in order to improve the quality of care provided, by making it faster and easier to locate equipment, patients and personnel, as well as safer, since it also helps ensure that every patient receives the proper medication or other care intended for that individual, thereby reducing the risk of errors.</p> <p>To improve the efficiency of services, reduce waiting times and improve clinical safety the visibility of processes, patient flow and saturated areas in surgical areas. To improve patient security and increase care time by healthcare professionals. To Reduce useless search times and optimize your inventory and maintenance costs achieving a fast ROI.</p>
<p>RELEVANCE FOR OTHER REGIONS</p>	<p>The system was deployed at a reference hospital, and subsequently, it has been installed in another 10 hospitals in Spain. Any region is a potential user of MYSPHERA, as all of them have hospitals.</p>
<p>BENEFICIARIES</p>	<ul style="list-style-type: none"> • Hospital managers • Hospital Head of Unit and Staff • Service Providers at hospitals which manage equipment and/or own staff
<p>MODE OF SUPPORT</p>	<p>The value is based on experience, management in the healthcare field, and primarily offering the best service and support to our customers so that they make the best use of the tools based on Real Time Location Systems (RTLS). MYSPHERA provides tools for hospitals and all of their units for process optimization, improved</p>

	inventory management and increased security for staff and patients. In addition, MYSPHERA is a modular and scalable solution, which offers their customers a periodic investment over time depending on their priorities, units or the type of elements that needing tracking.
FUNDING MODEL	<p>Tender to implement the project and a maintenance contract to support, upgrade and improve the system functionalities. In new hospitals, the system has also been implemented in a pay 'per use model', in which the costs are shared by hospitals and their service providers.</p> <p>The Project is financed by the Spanish Ministry of Economy and Competitiveness. National programme of public-private collaboration. Subprogramme INNPACTO. IPT-2012-1017-300000.</p>
ELIGIBLE COSTS	RTLS system, plus bracelets, fixed beacons and training of the personnel.
HOW TO IMPLEMENT SUCH A MEASURE AND PITFALLS TO AVOID	<p>A real time location system has to be implemented NOT thinking about the technology and the "location of things" as finality. It has to be implemented to solve the cases of incorrect usage and any problems that professionals working at a hospital may experience.</p> <div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="width: 45%; border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"> <p style="text-align: center;">DO Adopt a user centered approach</p> <p style="text-align: center;"></p> <p>It has to be implemented to solve the use cases, the problems that all kind professionals working at a hospital have to pain.</p> </div> <div style="width: 45%; border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"> <p style="text-align: center;">DON'T Lower the quality of cares provided</p> <p style="text-align: center;"></p> <p>The solution provides the hospital with a view into the locations of both patients and assets, in order to improve the quality of care provided,</p> </div> <div style="width: 45%; border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"> <p style="text-align: center;">DO Increase efficiency</p> <p style="text-align: center;"></p> <p>It helps to save hard Euros on improving the management of thousands of high value portable assets, being able to locate them wherever they are</p> </div> <div style="width: 45%; border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"> <p style="text-align: center;">DON'T Think only at the technology</p> <p style="text-align: center;"></p> <p>A real time location system has to be implemented NOT thinking about the technology and the "location of things" as finality.</p> </div> <div style="width: 45%; border: 1px solid #ccc; padding: 10px;"> <p style="text-align: center;">DO Costantly monitor the results</p> <p style="text-align: center;"></p> <p>An ad-hoc team was formed for this purpose by MYSPHERA's analysts and Hospital staff</p> </div> <div style="width: 45%; border: 1px solid #ccc; padding: 10px;"> <p style="text-align: center;">DON'T Overload the workflows</p> <p style="text-align: center;"></p> <p>Improving the services delivered to the patients and optimizing workflow management, results in shorter waiting times</p> </div> </div>

	<p>MYSHERA provides innovative tools based on real-time location and other relevant process information that help hospitals to get full transparency of their care processes; to pinpoint bottlenecks and control workflows in real-time by securely identifying patients, locate and track them and by providing critical status information that can reduce workload for care givers, and providing a safer care and increase overall efficiency.</p> <p>Additionally it helps to save money by improving the management of thousands of high value portable assets, being able to locate them wherever they are – in seconds – and measure usage rates in order to reduce stocks and save on new purchases.</p>
<p>ENGAGEMENT OF STAKEHOLDERS</p>	<p>MYSHERA was founded by TSB, which is a start-up formed by several entrepreneurs in ehealth field from the Universidad Polytechnic de Valencia.</p> <p>After launching the project at the Hospital la Fe, MYSPHERA raised a capital round from private investors.</p>
<p>TIMELINE</p>	<ul style="list-style-type: none"> • 2010: TSB-SPHERA hospital chose to provide location, tracking and monitoring of patients and assets in the new Hospital La Fe in Valencia • 2012: Mobility System installed in the Polytechnic University Hospital “La Fe”; IT @ Networking Awards 2012: RTLS solution in the new Hospital La Fe in Valencia selected for final awards; 2012: SPHERA hospital guarantees clinical safety for the patients at Hospital Centro de Recuperación y rehabilitación de Levante (CRRL) • 2013: MYSPHERA was awarded Best Company for Investors • 2014: Extension of the location system in Intermutual Hospital of Levante <p>It was upgraded in 2015, including functionalities to provide real time information about the hospital unit status of medical staff by means of TV dashboards. It also included panels to inform relatives about patient location and status in TVs in waiting rooms.</p>
<p>MONITORING OF RESULTS AND THE IMPACT</p>	<p>MYSHERA system had to identify and locate 1.000 patients/day and more than 2.000 assets in the whole hospital. It had to provide different information views and reports to support healthcare managers in improving process and resource management.</p> <p>Some examples:</p> <ul style="list-style-type: none"> • 100% patient identification • 10% surgery rooms capacity increase • 25% decrease of staff time searching for equipment (wheel chairs, electro-medical equipment, etc.) <p>20% patient and relatives satisfaction improvement</p> <p>There are many benefits to measure in a project like this. An ad-hoc team was formed for this purpose by MYSPHERA’s analysts and Hospital staff.</p>

Surgery unit:

- Improve patient flows due to easy access of information about time and status of each patient within the care process.
- Reduce staff interruptions providing real time information to personnel and relatives of patient location and his status within the treatment process.
- Avoid identification errors when a patient is admitted or providing automatically the correct identification and notifying any non-compliment.
- Improves capacity management providing real-time information of area and room occupation.
- Avoids costly surgery delays and cancellations, quickly finds important equipment. Saves wasted time and stress.
- Improved care and logistic processes, detects bottlenecks and increases after care through post-analytics of tracking and status data.

Emergency department:





- Improved service efficiency and reduced waiting times due to a better visibility of processes, patient flow and bottlenecks in the ED.
- Reduced staff interruptions providing real time information to personnel and relatives of patient location and status within the treatment process.
- Avoids unnecessary waiting times for patients by providing real-time visibility of global and individual waiting times in each process step.
- Expanded ED capacity and expedite patient flow by accessing real-time information of the capacity of each ED area and of the status and time each patient spends within the care process.
- Instant location of all portable equipment within the ED through asset location features, saving search time and deviation of staff.

Patient wards:

- Avoid errors in treatment and medication due to false bed-side identification.
- Reducing search times and providing faster and easier access to information helps to improve care quality and leaves more time for care givers to do what they do best: patient care.
- Minimizing staff disruptions avoiding calls or patient and asset searches.
- Providing access to crucial information of ward capacity and occupation as well as care process; patient on ward y/n, patient in OR or x-ray, rehabilitation, etc., bed occupation, status of lab tests, etc.)
- Activation of bed assignment / change
- Finding quickly any portable equipment: wheelchairs, beds, monitors

Asset Management:

- Instantly finds portable equipment through asset location features, saving search time of staff.
- Equipment spending control: Knowing at any moment where and in which state an asset is helps to avoid hoarding, overstocks, losses, etc. results in savings made on expenditures (>100k€ / year)
- New purchases can be better planned when knowing usage rate of each asset (mostly less than 40%).
- Maintenance can be optimized and reduce workload and costs (by time reduction, more equipment in use and less in maintenance).

	<ul style="list-style-type: none"> • Equipment is easier to use due to its correct and fast and immediate access to support documents and manuals. • Reduce asset losses caused by theft due to detection and alerting at exit ways. • Control and prevention of cross-contamination when equipment is moved between departments of risk.
<p>AWARENESS RAISING AND COMMUNICATION</p>	<p>MYSPHERA has been awarded with several recognitions:</p> <ul style="list-style-type: none"> • Best company for investors of Valencia region 2013 • Most relevant it project 2014 in Valencia region • Selected by Techtour as one of the top 25 companies of Spain (13) and Portugal (12) to invest in 2014. • Business innovation observatory of European Commission awards 2015. (One of the 8 finalists as most disruptive innovation in Europe) <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>DÍA DE LA PERSONA EMPREDEDORA 19 DE NOVIEMBRE COMUNITAT VALENCIANA</p> </div> <div style="text-align: center;">  <p>NTK NOCHE DE LAS TELECOMUNICACIONES VALENCIANAS</p> </div> <div style="text-align: center;">  <p>TECHTOUR 25 SELECTED COMPANIES</p> </div> <div style="text-align: center;">  <p>EUROPEAN COMMISSION</p> </div> </div>
<p>LINKS</p>	<ul style="list-style-type: none"> • http://mysphera.com/

My Sphera - La Fe

WHAT

Real-time locating system (RTLS) to track patients and assets and to allow hospital staff members to identify patients via mobile carts with built-in RFID readers.

WHO

MYSOPHERA was created by TSB, a startup formed by entrepreneurs from the Universidad Polytechnic de Valencia.

2012

Mobility System installed in the Polytechnic University Hospital "La Fe"



The solution provides the hospital with a view into the locations of both patients and assets, in order to improve the quality of care provided.

2014

Extension of the location system in Intermutual Hospital of Levante



KEY FACTS

1



10% surgery room capacity increase

2



100% patients identification

3



25% decrease of staff time searching for equipment

4



Easy information access

5



Expanded to +10 hospitals

ANNEX

5. BACKGROUND

5.1. DEFINITIONS

Policy Framework

A strategic policy framework is a document or set of documents established at national and/or regional level, which sets out a limited number of coherent priorities. The policy is established on the basis of evidence and a timeframe for the implementation of those priorities which may include a monitoring mechanism. A Strategic Policy Framework for Digital Growth should therefore chart out the obstacles; for affordable, good quality and interoperable ICT-enabled private and public services, and for higher ICT uptake by citizens (including vulnerable groups, businesses and public administrations as well as cross-border initiatives). This should include action needed to overcome these obstacles; in order to maximize the social and economic potential of ICT, most notably the internet. The framework should be based on the evidence and set objectives that make it possible to measure them against the Digital Agenda for Europe scoreboard indicators. It should contain measures ensuring that attractive content and services are made available in an interoperable internet environment to stimulate demand for higher speeds and capacity; as well as measures supporting the deployment and take-up of faster networks that can deliver this content and services.

Next generation networks

Next generation networks (NGNs) are networks which are capable of delivering broadband access services with enhanced characteristics (such as higher throughput) as compared to those provided over basic broadband networks. Next Generation Networks consist, at least in part, of optical elements (fibre), but other technologies can be used; notably in the part of the network closer to the user (Next Generation Access –NGA- network). NGNs are able to deliver at least the 30 Mbps target.

5.2. ADDITIONAL INFORMATION

- Digital Agenda Scoreboard 2013: <http://ec.europa.eu/digital-agenda/en/scoreboard>
 - By country: <https://ec.europa.eu/digital-agenda/en/scoreboard-country>
 - List of Digital Agenda Scoreboard Indicators: http://digital-agenda-data.eu/datasets/digital_agenda_scoreboard_key_indicators/indicators
- Digital Agenda Toolbox (draft): <http://s3platform.jrc.ec.europa.eu/digital-agenda>
- Digital Agenda Europe: <http://ec.europa.eu/digital-agenda/digital-agenda-europe>
- General information on EU broadband policy: <https://ec.europa.eu/digital-agenda/en/about-broadband>
- Broadband Europe: <http://www.broadband-europe.eu>
- Broadband technologies for the future: http://ec.europa.eu/information_society/activities/broadband/docs/annex_1.pdf
- Guide to Broadband Investment (September 2011): http://ipts.jrc.ec.europa.eu/activities/research-and-innovation/documents/broadband2011_en.pdf

5.3. LIST OF ACRONYMS

ICT	Information Communication Technology
ERDF	European Regional Development Fund
ESIF	European Structural and Investment Funds
ISP	Internet Service Provider
SME	Small Medium Enterprise
FTTC	Fiber To The Cabinet
FOTP	Fiber To The Permisses
FTTH	Fiber To The Home
FTTN	Fiber To The Node
LTE	Long Term Evolution
NGN	Next Generation Network
PPP	Public Private Partnership
HSDPA	High Speed Downlink Packing Access
FP7	Seventh Framework Programme
IEEE	Institute of Electrical and Electronics Engineers standard
ISBO	Independent Small Business Owner
FBB	Federal Broadband Bureau
BMWI	Federal Ministry for Economic Affairs and Energy
BMVI	Federal Ministry of Transport and Digital Infrastructure
eIDAS	Electronic Identification and Trusted Services Directive
ESMP	Enterprise Mobility Services Platform

S+CC	Smart + Connected City
SEO	Search Engine Optimization
SEM	Search Engine Marketing
KPI's	Key Performance Indicators
GDP	Gross Domestic Product
R&D&I	Research, Development and Innovation
EARDF	European Agricultural Fund for Rural Development

5.4. RESEARCH ONLINE SOURCES

Source of information	Weblink
Digital agenda for Europe	https://ec.europa.eu/digital-agenda/en/digital-europe
European Commission, DG Communications Networks, Content & Technology: The broadband State Aid rules explained, Final report	http://www.digitalplan.gov.gr/resource-api/dipla/contentObject/The-Broadband-State-Aid-rules-explained/content
European Commission: Guide to High Speed Broadband Investment, 18 September 2014	http://ec.europa.eu/regional_policy/sources/docgener/presenta/broadband2011/broadband2011_en.pdf
Smart Specialisation Platform: Guides, tools and good practices for designing and implementing RIS3 strategies	http://s3platform.jrc.ec.europa.eu/
Directive 2002/21/EC of 7 March 2002 on a common regulatory framework for electronic communications networks and services ("Framework Directive") – consolidated version including amendments introduced by amending Acts in 2007 and 2009	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2002L0021:20091219:EN:PDF
Directive 2002/19/EC of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities ("Access Directive") - consolidated version including the amendments introduced by Directive 2009/140/EC of 25 November 2009	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2002L0019:20091219:EN:PDF
Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (NGA)	http://eur-lex.europa.eu/LexUriServ/%20LexUriServ.do?uri=OJ:L:2010:251:0035:0048:EN:PDF
<p>Communication from the Commission (COM(2010) 472 final) of 20 September 2010 on European Broadband: investing in digitally driven growth</p> <p><i>In this Communication the Commission stressed the importance of all Member States having an operational broadband plan with defined national targets aligned on European broadband targets, as well as a balanced set of policy measures to incentivise investment. The Communication included a commitment to review national broadband plans as part of its Digital Agenda governance.</i></p>	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0472:FIN:EN:PDF

<p>Decision No 243/2012/EU of the European Parliament and of the Council of 14 March 2012 establishing a multi-annual radio spectrum policy programme</p> <p><i>The Radio Spectrum Policy Programme (RSPP) defines key policy objectives and sets up general principles for managing the radio spectrum in the internal market.</i></p>	<p>http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:081:0007:0017:EN:PDF</p>
<p>Commission Staff Working Document (SWD(2012) 68 final/2) on the implementation of national Broadband Plans of 23 March 2012</p> <p><i>In line with the commitment taken in the 2012 Broadband Communication, this paper examines the current state of play with respect to the implementation of national broadband plans</i></p>	<p>http://ec.europa.eu/information_society/newsroom/cf/document.cfm?action=display&doc_id=9</p>
<p>Communication from the Commission (COM(2012) 784 final) of 18 December 2012 on "The Digital Agenda for Europe - Driving European growth digitally"</p> <p><i>This Communication refocuses the Digital Agenda to better stimulate the digital economy through measures in several key areas, including high-speed fixed and mobile broadband networks.</i></p>	<p>http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=1381</p>
<p>EU Guidelines for the application of State aid rules in relation to the rapid deployment of broadband networks (January 2013)</p>	<p>http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2013:025:0001:0026:EN:PDF</p>
<p>Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A Digital Agenda for Europe (COM(2010) 245 final/2 of 26.8.2010)</p>	<p>http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF</p>
<p>Council Conclusions on the Digital Agenda for Europe (doc. 10130/10 of 31May 2010)</p> <p><i>The Council of the European Union endorsed the establishment of an ambitious action agenda and invited the Commission and Member States to seek ways to enhance horizontal coordination between concerned institutions both at the EU and national level in order to improve the implementation of the Digital Agenda for Europe.</i></p>	<p>http://www.consilium.europa.eu/uedocs/cms_Data/docs/press_data/en/trans/114710.pdf</p>

5.5. LIST OF RELATED EU BEST PRACTICES AND PROJECTS

TRIANGULUM	http://www.triangulum-project.eu/
REMOURBAN	http://www.remourban.eu/
GrowSmarter	http://www.grow-smarter.eu/home/
Lites	http://www.lites-lights.eu/
Green@Hospital	http://www.greenhospital-project.eu/
EDISON	http://www.project-edison.eu
Smart Campus	http://greensmartcampus.eu/
Smart Build	http://www.smartbuild.eu/
SMARTSPACES	www.guide.smartspaces.eu
VERYSchool	http://www.veryschool.eu/index.php
3e-Houses	http://www.3ehouses.eu/
eSESH	http://www.empirica.biz/projects/energy.html
We Live	http://www.welive.eu
Your Data Stories	http://yourdatastories.eu/
Route To Pa Project	http://routetopa.eu/
DigiWhist	http://digiwhist.eu/
Open Budgets	http://openbudgets.eu
Euth	http://www.euthproject.eu/
Step	http://step4youth.eu/
A-Bam	https://ec.europa.eu/easme/en/sme/6335/application-broadband-availability-mapping-bam

